INDEX TO VOL. CLXVI

The **Principal Headings** with their **page numbers** are as follows:—

Aeronautics, VII.
American Engineering News, VIII.
Associations, Institutions and Societies, VIII.
Boilers, IX.
Bridges, IX.
British Standards Institution, IX.
Canadian Engineering News, IX.
Canals, IX.
Chinese Engineering Notes, IX.
Coal, Coke and Collieries, IX.
Compressors, X.
Concrete, X.
Dams, X.
Docks and Harbours, X.
Electrical Matters, X.
Engines, XI.
Exhibitions, XI.
French Engineering Notes, XI.
Furnaces, XI.
Hydro-Electric Power, XII.
Iron and Steel, XII.
Leading Articles, XII.
Letters to the Editor, XII.
Literature, XII.
L.P.T.B., XIII.
Machine Tools, XIII.
Maps, XIII.
Mines, XIII.
Motor Cars, XIII.
Obituary, XIII.
Patent Specifications, British, XIV.
Pencil Portraits, XIV.
Pumps, XIV.
Railways, XIV.
Railway Locomotive Matters, XV.
Roads and Highways, XV.
Seven Day Journal, XVIII.
Ships and Shipbuilding, XV.
Sixty Years Ago, XVI.
South African Engineering Notes, XVI.
Supplements, XVII.
Technical Reports, XVII.
Telegraphy and Telephony, XVII.
THE METALLURGIST, XIX.
Tunnels, XVII.
Water Supply, XVII.
Welding, XVII.
Wireless, XVIII.

Names

A

ABEL, G. C., Measurements of Accelerations at Different Parts of a Boat Seaplane during Take-off and Landing, 624
Ablett, N. L., Railway Difficulties in Egypt, (591)
Adamson, Daniel, and Co., Ltd., New Air-tight Inspection Door, 653
Admiralty Laboratory at Sheffield, 689, 706
Adwani, D. B., Water Supply of Karachi, India, 588
A.E.G. Electric Co., Ltd., New Electric Control System, 421
Ahearn, Hon. T., Obituary, 1
Ailsa Shipbuilding Co., Ltd., Troon Graving Dock Improvements, (227)
Aircraft Operating Co. of Africa (Pty.), Ltd., Aerial Maps of South Africa, 545
Aitken, H. W., Co., Ltd., "Grano" Metal for Sugar Mill Rollers, Coal-tar Distilling Plant, Heat Exchanger, Carpet Shearing Machine, 354; Soda Recovery Plant for Paper Mills, 355; (Correction, 387)
Albert Canal, Belgium, 269
Alcock Viscous Flow Air Meters, Ricardo and Co., Engineers (1927), Ltd., 743
Aldgate East Station, The New, 489
Algoma Steel Corporation, Ltd., Steel Plant Extensions, 212
Allen, R. W., The Use of Scale Models in Engineering, 246; (Leading Article, 473)
Allen West and Co., Ltd., E.H.T. Switchgear for Durban, 101
Allgemeine Elektrizitats Gesellschaft, Large Transportable Transformer, 422
Allgemeine Transportanlagen, A.G., Moulding Concrete Drainage Pipes Underground, 654
Allis-Chalmers Manufacturing Co., Ltd., "B" Type Tractor, 39
Allison, H., and L. E. Benson, Relief of Internal Stress in Castings, 23
Aluminium Information Bureau, World Supplies of Bauxite, (471)
Aluminium Union, Ltd., Bauxite Mining in British Guiana (Models), 305
American Locomotive Co., 4–6–4 Streamlined Locomotives, (415)
"Amra," British India Twin-screw Turbine Steamer, 666 (*Supplement, December 16th*, 1938)
Andre-Hutton Experimental Pump, Silentbloc, Ltd., 499
Andrews, C. F. W., Panama Canal Locks, (335)
Andrews, L., Sources of Waste Heat Losses in Fine Grinding, 745
Anglo-German Industrial Discussions, 719
Anglo-Iranian Oil Co., Ltd., New Oilfields in Iran, (13)
Angus, R. W., Text-books, 538
Archdale, James, and Co., Ltd., Radial Drilling Machine, 581; Traversing Head Line Milling Machine at A.E.C. Works, 697
Armstrong's Patents Co., Ltd., Independent Front Wheel Suspension Unit, 449
"Asama Maru," Nippon Yusen Kaisha Liner, 351
Asbury, W., Klingenberg Power Station, (253)
Asea Electric, Ltd., Krangede Hydro-electric Power Scheme, 193, 202, 244, 318; Resistance and Reactance Tap-changing Gear, 317
Ashbridge, Sir Noel, Television (Hawksley Lecture), 526
Ashworth and Parker, Ltd., Single-cylinder Steam Engine, 413
Asquith, William, Ltd., Horizontal Boring and Milling Machine, 666
Assiut Barrage Remodelling, Coode, Wilson, Mitchell and Vaughan-Lee, 254, 258
Associated Equipment Co., Ltd., New Direct Injection Oil Engine, 120; Railcars for G.W.R., (281); Description of Southall Works, 678, 697, 702, 726
Associated Offices Technical Committee, Arc-welded Pressure Vessels, (121)
Atkinson, A. D. S., Lamps and Eyes, 77
Aubrey, S. J., Re-elected Chairman of Lloyd's, (673)
August's, Ltd., Cement Sand Preparation Plant, 398
Automobile Association, Annual Meeting, (121)
Aveling-Barford, Ltd., 2½-Yard Dumper, 39

B

BABCOCK and Wilcox, Ltd., Interesting Boiler Mishap, 177; Boilers at Clarence Dock Power Station, 460, 472; Boilers for British India Twin-screw Steamer "Amra," 666 (*Supplement, December 16th*, 1938)
Bailey, Sir W. H., and Co., Ltd., Oil and Bearing Testing Machine ("Admiralty"), 209
Bakelite, Ltd., New Adhesive for Plywood ("Plybond"), (41); Plastic Materials at Glasgow Exhibition, 250; Rapid-drying Primers, 510; Wood-faced Laminated Material, 742
Baker, H. P., and E. E. Hoadley, Centralised Automatic Control of Street Lighting, 99
Baldwin Locomotive Works, Freight Locomotives for Atchison, Topeka and Santa Fe Railroad, (701)
Balfour, H., and Co., Ltd., Automatic Operator for Water Gas Plants, 285
Bamfords, Ltd., Manure Distributor, 74
Barclay, Curle and Co., Ltd., P. & O. Troopship "Ettrick," (227), 719
Barclay, W. R., Obituary, 339
Barford, V. G., Obituary, (334)
Barimar, Ltd., Welding Steel to Cast Iron, (78)
Barnwell, Captain F. S., Obituary, 152
Barr and Stroud, Ltd., Submarine Periscope, C.H. 55, 62
Barry, W. C., Jointing Box Compound, (563)
Bartlett Dam, Arizona, Multiple-arch Concrete Dam, 400
Bassett Lowke, Ltd., Model Coal Mine at Glasgow Exhibition, 172
Basrah Petroleum Co., Ltd., Iraq Oil Concession, (149)
Bauer, S. G., A Mechanical-optical High-speed Indicator, 196; (Letters, 316, 392)
Beardmore, W., and Co., Ltd., Steel Castings for "Queen Elizabeth," 357; Exhibits at Glasgow Empire Exhibition, 469
Beaver, H., Problems of Industrial Planning, 511; (Leading Article, 503)
Beeny, H. H., and A. H. Lloyd, Cutting Fluids and the Machine Tool, 420
Begeman, M. L., Hard-surfacing Processes and Materials, 743
Beij, K. H., Pressure Losses for Fluid Flow in 90 deg. Pipe Bends, 624
Bell Telephone Laboratories, Radio Echo Altimeter, (617)
Bellamy, R. G., A Precombustion Ignition Coal-oil Engine, 39, 70
Belliss, John, Obituary, 566
Benford, Ltd., "Regulus" Portable Concrete Mixer, 317
Bennett, Ben., Jun., Ltd., Electric Rolling Mill and Furnace Equipment, General Electric Co., Ltd., 206
Benoto Societe Francaise, Travelling Grab Loader, 544
Benson, L. E., and H. Allison, Relief of Internal Stress in Castings, 23
"Berengaria," Cunard White Star Liner, to be Broken Up, (471), (533)
Berk, F. W., and Co., Ltd., New Contact Sulphuric Acid Plant, Simon Carves, Ltd., 478
Berthold, R., Non-destructive Testing in Germany, (617)
Beyer, Peacock and Co., Ltd., Beyer-Garratt Articulated Locomotives for South Africa, (673)
Bigwood, Joshua, and Sons, Ltd., Merger with Laystall Engineering Co., (227); Large Plate Bending Rolls, 372
Binnie, W. J. E., Presidential Address, Institution of Civil Engineers, 493; (Leading Article, 535)
Birkett, T. M., and Sons, Ltd., Aluminium-Bronze Anchor, 470
Birmingham Electricity Failure, 570
Birmingham, Tame and Rea Drainage Board, Air Ministry Land Purchases, (591)
Black and Decker, Ltd., Small Electric Drill, 709
Blackstone and Co., Ltd., "A Hundred Years of Progress," T. L. Price, (613)
Blackwall Tunnel, The New, 633
Blakiston, J., The Modern Manufacture of Machine Tool Castings, 102; (Letter, 119)
Bluewater International Road Bridge, Ontario, (471); Sodium Vapour Lighting, 709
Boby, W., and Co., Ltd., Water-softening Plant at Newnham Pumping Station, 480
Bojesen, C. C., Electrical Installations in China, 104
Booth, Charles, Obituary, (673)
Boots Pure Drug Co., Ltd., New Factory at Beeston, Notts, 618, 621
Boulder Dam–Los Angeles Transmission Line, (471)
Bournemouth District Sewage Scheme, (201)
Bouton, Georges, Obituary, 549
Bowley, A. L., Production and Efficiency, 658; (Leading Article, 647)
Bowring, C. T., and Co., Ltd., Motorship "Regent Tiger," Swan, Hunter and Wigham Richardson, Ltd., 287
Brackenbury, H. I., Obituary, 339
Bradby's Engineering Works, Ltd., Portable Electric Generator Set, 423
Bragg, Sir William, The Molecular Basis of the Strength of Materials (Andrew Laing Lecture, 572; (Leading Article, 565)
Bressey, Sir C. H., President, Junior Institution of Engineers, (12); Roads and Traffic (Presidential Address), 683; (Leading Article, 675)
Bright, H. A., and J. L. Hague, Determination of Boron in Steel and Cast Iron, (335)
Brightside Foundry and Engineering Co., Ltd., 8in. Double Duo Rolling Mill, 22
Bristol Aeroplane Co., Ltd., "Bristol Hercules" Aero-engines, (471); Modified Version of Blenheim Bomber, (501)
Bristol Tractors, Ltd., Jowett-engined Tractor, 39
British Aircraft Manufacturing Co., Acquired by General Aircraft, Ltd., (121)
British Airways "New Lockheed 14" Aircraft, (253), (335)
British Aluminium Co., Ltd., Aluminium Production in India, (149)
British Broadcasting Corporation, Broadcasting House Extension, (175), (701); New Station at Aberdeen, (309)
British Central Electric Co., Improved Electric Hand Lamp, 208
British Coal Utilisation Research Association, First Ordinary Meeting, 689
British Corporation of Shipping and Aircraft, Rules for Fusion Welded Boilers, 165
British Engine Boiler and Electrical Insurance Co., Ltd., Interesting Shaft Fractures, 590
British Gazogenes, Ltd., Fordson Tractor with Gas Producer, 73
British Institute of Engineering Technology, Ltd., "Engineering Opportunities," (104)
British Insulated Cables, Ltd., A Large Resistance Welder, 510
British Metal Corporation, Ltd., Base Metal Consumption, (41)
British Oil Burner Manufacturers' Association, Annual Meeting, 12
British Piston Ring Co., Ltd., Surface Treatment for Piston Rings ("Bricoseal"), (117)
British Power Boat Co., New Motor Torpedo Boats, 189; "Sea Lion" 500 B.H.P. Marine Engine, 465
British Road Federation, Basic Road Statistics, 109
British Ropeway Engineering Co., Ltd., Ropeway at Avonmouth Works of National Smelting Co., 737
British Steelwork Association, Air Raid Shelters, 297
British Thomson-Houston Co., Ltd., I.E.E. Visit to Rugby Works, 75; Reduction of Noise from Transformer Sub-stations, 341; Ignitron Loading Equipments for Traction Sub-stations, 396; Switchgear for Clarence Dock Power Station, 463; Single-phase to Three-phase Conversion, 509; Individual Electric Drives, 521, 580
Broken Hill Silver Lead Mines, (335)
Brookhirst Switchgear, Ltd., "Isofuse" Triple-pole Switch, 597
Broom and Wade, Ltd., New Yokes for Squeeze Riveters, 596; Lightweight Pneumatic Rock Drills, 742
Broughty Ferry and District Steam Laundry, Ltd., Large Hot Water Storage Tank, 20
Browett Lindley, J., (1931), Ltd., Monobloc Compressor, 46
Brown Boveri Co., Mutator-operated Induction Furnaces, 333; Mutators with Uncontrolled and Controlled Grids, 452
Brown, David, and Sons (Hudd.), Ltd., Fabricated Gear Units, 101; Rear Axle Reduction Gears for Motor Cars, 465; Change-speed Gear-box, 610
Brown, John, and Co., Ltd., Cunard White Star Liner "Queen Elizabeth," 189, 340 (*Supplement, September 23rd*, 1938), 351, 357, 390, 393; H.M. Submarine Depôt Ship "Forth," (201); Launch of H.M. Destroyer "Jackal," (471); Naval Orders, (645)
Brown, R. D., Social and International Problems and the Civil Engineer, 424; (Leading Article, 417)
Brown, W. S., Theoretical Discharge of Air from Ports in a Duct, 587, 610
Brownlie, J. T., Obituary, 447
Brush Electrical Engineering Co., Ltd., Agreement with Petters, Ltd., 297; Loughborough Works' Reorganisation, 719
B.S.A. Tools, Ltd., Multi-tool Lathe, 665
Budd, R., Oil-engined Locomotives in Service, (238)
Bumgardner, H. E., Smoke-density Measurements, 372
"Buna," A. D. Little, Inc., 625
Burgenstock-Hammetschwand Lift, Schindler and Co., 542
Burkhardt, J. E., The Marine Oil Engine in America, 11
Burma-Yunnan Road and Railway, C. A. Middleton Smith, 692, 725
Burnham, T. H., From Works Management Education to Works Management, 158, 183
Burmeister and Wain, High-speed Motorship "Besarabia," (415)
Burntisland Shipbuilding Co., Ltd., Big Output, (201)
Burt, L. N., The Grid and the Papermaker, 651; (Letter, 672)
Burton, Griffiths and Co., Ltd., Machine Tool Demonstration Van, 708
Busk Studentship in Aeronautics Awarded to G. O. Jones, (67)
Butler, R. R., Eye Protection in High-temperature Operations, 24

C

CABLES and Wireless, Ltd., Empire Wireless Chain, (645)
Cairns, T. Russell, Elected President, N.E. Coast Institution of Engineers and Shipbuilders, (443); Shipbuilders, Shipowners, and International Trade (Pres. Address), 483
Caledon Shipbuilding and Engineering Co., Ltd., H.M.S. "Scott," Launched, (253)
Callender, Sir Thomas O., Obituary, 649
Cambridge Aerodrome, (363)
Cammell, Laird and Co., Ltd., H.M. Submarine "Thetis," (41); Cunard White Star Liner "Mauretania," 143 (*Supplement, August 5th*, 1938), 178, (645)
Campbell, D. F., Electric Furnaces in European Steel Works, 504
Campbell, Hugh, The Grid and the Oil Engine Industry, 474

Figures in Brackets ( ) refer to paragraphs.

Campbell, Sir Malcolm, Water Speed Record, (227), (335)
Canadian General Electric Co., Ltd., Thermal Tripping Element, 388
Canadian Pacific Railway, Orders for New Ships, (93), (471)
Canton Harbour, 574
"Canton," P. & O. Liner, Alexander Stephen and Sons, Ltd., 379, 416, 419
Cape Steel Construction Co., Steel Works for Cape Town, 545
Cape Town Harbour, 426
Cape Town Power Station, 184
Cape Town's Reclamation Scheme, 291
Cardiff Power Station Extensions, (645)
"Carnarvon Castle," Re-engining the, Harland and Wolff, Ltd., (13)
Carpenter, Dr. Charles, Obituary, 314
Carter, B. C., Vibration in Aircraft, 307
Cassis, France, Unusual Form of Reservoir, 236
Castlecary Railway Accident, L.N.E. Railway, 15
C.A.V.-Bosch, Ltd., Searchlight, 500
Celotex, Ltd., Cane Fibre Expansion Joints, (67)
Central London Railway Extension, 519
Chabal et Cie., Unusual Form of Reservoir, 236
Chalmers, R., The Engineers' Guild, 200, 333, 424; Engineers and the Peace of the World, 450
Chance Brothers and Co., Ltd., "Idaglas" Fibres, 385
Charing Cross District Railway Accident Report, 325
Chatley, H., The Status of the Engineer, 489
Chatley, H., and H. Gutteridge, Engineering Aspects of Air Raid Protection, 529
Chesterfield Tube Co., Ltd., Works Extensions, 672
Chicago, Burlington and Quincy Railroad, New "Zephyr" Train, (452)
Chicago Lift Bridges, 320
Chicago and North-Western Railroad, New 4-6-4 Streamlined Locomotives, (309)
Chicago Underground Railway, (563), 742
Chisholm, W. F., Fight with an Oil Well, 532, 534
Christie, A. G., Nominated President, A.S.M.E., (67)
Christie, George, Ltd., Wire Drawing Machine, 438
Christie, S. P., "Buzz Box" Power Units, 9
Christopherson, D. G., Relaxation Methods Applied to Grid Frameworks, 145; Relaxation Method for the Solution of Poisson's Equation, 231
Churchill-Redman, Ltd., Heavy-duty Shaping Machines, 653
Clarence Dock Power Station, Liverpool Corporation, 460, 472
Clark, J. H. M., Foreign-built Ships, (121)
Clarke Troller Outboard Motor, Treglown, Ltd., 499
Clerk, Dugald, and the Gas Engine, W. A. Tookey, 663
Cleveland Bridge and Engineering Co., Ltd., Bridge Widening at Neasden, L.P.T.B., 339
Clyde Alloy Steels, Ltd., Engine Crank Case from Airship "R 101," 468
Clyde Blowers, Ltd., "X L" Type Blower, 413
Clyde Dredging, (701)
Clyde Fuel Systems, Ltd., Automatic Coal Stokers and Oil Burners, 5
Clyde Shipbuilding, (733)
Coast Lines, Ltd., New Ships, (13)
Cobb, John, Land Speed Record, (309), (335)
Cochrane and Sons, Ltd., Ocean Tug "Neptunia," (309)
Cockburn, A., and Co., Boiler Fittings, 413
Cockerill, John, S.A., New Continental Winding Plant, 74
Coisley Hill Sewage Works, Sheffield, 65
Colchester Lathe Co., "Triumph" All-geared Lathe, 386
Collie, W. Stewart, "Hydrogap" Rudder, 405, 708
Collingwood Shipyards, Ltd., All-welded Tanker, 212
Collis, J., and Sons, Ltd., Hydraulic Lifting Truck, and Stacking Machine, 414; (Correction, 440)
Colombo Graving Dock, 83, (617)
Colorado Fuel and Iron Corporation, Cutting Up Scrap in Large Yards, (201)
Colorado River Aqueduct, (673)
Colquhoun, J. F., Street Lighting, 290
Colvilles, Ltd., Clydebridge Plate Mill Model, 468; Memorial Gift to Royal Infirmary, Glasgow, (471)
Consolidated Mining and Smelting Co., Unusual Haulage Job, 392
Coode, Wilson, Mitchell and Vaughan-Lee, New Graving Dock at Colombo, 83; Assiut Barrage Remodelling, 254, 258
Cook, F. C., Road Development in Great Britain, 275
Cook, S. S., Sir Charles Parsons and Marine Propulsion (Memorial Lecture), 638
Coombes, J. E. M., Suppression of Radio Interference Caused by Trolleybuses, 232
Copper Development Association, Driving Earth Electrodes, 422
Costain, Richard, Ltd., Trans-Iranian Railway, 217
Coventry Gauge and Tool Co., Ltd., Matrix Thread Grinding Machines, 666
Coventry Water Supply, 351, (617)
Cox and Stevens, Inc., Sea-going Sewage Sludge Vessels, 586
Crampton, A. W., The Engineers' Guild, 119, 259, 360, 450
Craven Brothers (Manchester), Ltd., Propaganda and Foreign Trade, 10; (Leading Article, 16); 230-Ton Lathe, 370; Double-ended Shafting and Turbine Lathe, 531
Crofts (Engineers), Ltd., Variable-speed Pulleys, 608
Crossley Brothers, Ltd., Four-cylinder 56 B.H.P. Oil Engine, and "BVD" 10 B.H.P. Oil Engine, 467
Crossley, T. L., H. R. Petersen and R. J. Hart, Paper from Waste Wood, (93)
Crompton, Colonel R. E., Diamond Jubilee, 57
Cuban Merchant Marine, Orders Placed, 269
Cutlers' Feast, The 310th, 431
Czechoslovak State Railways Report, (501)

D

DALMARNOCK Power Station, 50,000-kW Turbo-alternator, C. A. Parsons and Co., Ltd., 60, 68 (*Supplement, July 15th*, 1938)
D'Arcy Exploration Co., Ltd., Broseley Oil Search Abandoned, (701)
Darlington Forge Co., Ltd., Propeller Shaft Stern Tubes for "Queen Elizabeth," 358
Dartford-Purfleet Tunnel, 379, (415); New Approach Road, (645)
Darwin, C. G., Logic and Probability in Physics, 237; (Leading Article, 229); Appointed Director, National Physical Laboratory, 405
Davenport-Besler Corporation, 760 H.P. Oil-electric Shunting Engine, (335)
Davey, Paxman and Co. (Colchester), Ltd., Sixteen-cylinder Light-weight Marine Oil Engine, 91
Davidson, A. C., Alloying of Tin and Bismuth, (175)
Davies, A. J., and F. V. A. E. Engel, Velocity Profiles and Flow of Fluids through a Contracted Pipe Line, 720
Davis, P., Glider Altitude Record, (175)
Dawson, Sir Philip, Obituary, 366
de Havilland Aircraft Co., Ltd., An Overload Aeroplane Test, 243; South African Factory Proposed, 545
Delany, S., Obituary, (442)
Delta, S. A., Electric Lamp Factory in South Africa, 52
Denver and Rio Grande Western Railroad, Four-cylinder 4-6-6-4 Articulated Locomotives, (121)
Derousseaux, J., Coal Reserves in France, (320)
"Destron" Split Pulley for Belt Drives, Douglas Lawson and Co., Ltd., 510
Des Voeux, H. A., Presidential Address, Smoke Abatement Society, 633
Deutsche Werft, Large Oil-electric Ship "Patria," (227)
Dewhurst, P. C., Railway Wheels, 9
Dick, J., Dynamical Problems in the Design of a Large Bell, 251
Dickinson, H. W., Doctor of Engineering, Lehigh University, (483)
Dollar Steamship Corporation, Taken Over by U.S. Government, (227); New Ships, (471)
"Dominion Monarch," Shaw Savill Motorship, Swan, Hunter and Wigham Richardson, Ltd., (121), 137
Donkin, S. B., Technical and Economical Developments in Electrical Engineering, 50
Dordogne Barrage, France, 135
Dortmund Experimental Mine, 636
Dott, G., Oil Drilling in Great Britain, 169, 191, 220; (Letter, 259)
Doxford, William, and Sons, Ltd., 8000 S.H.P. Marine Oil Engine, 199
Drechsel, W., Glider Altitude Record, (175)
Drum Engineering Co., Ltd., "P.R.D." Rotary Pump, 262
Drysdale and Co., Ltd., Fountain Displays at Glasgow Exhibition, 115; "Upright" Pumps, 117
Dulong, André, A New Bridge Design, 717
Duncan Stewart and Co., Ltd., Rapid Cooling Crystalliser, 332
Duncan, W. J., Galerkin's Method in Mechanics and Differential Equations, 70; Diffusion of Load in Certain Sheet-Stringer Combinations, 644
"Durban Castle," Union Castle Liner, Harland and Wolff, Ltd., 719
Durban's Sewerage Scheme, 90
Durham, F. E. F., Retirement from Metropolitan Water Board, 719
Duveen, H., Textile Factory in South Africa, 52
Dzerjinsky Technical Heat Institute, Aluminium from Power Station Waste, (175)

E

EBBW Vale, Richard Thomas and Co., Ltd., 31
Eccles, G. O., A Moving-coil Vibrometer, 232
Eckener, Dr., Awarded Gold Medal of Royal Aeronautical Society, (443)
Edgecombe, C. H., The Braking of Railway Trains, 277
Edward, J. and F. H. Todd, Steam Drifters Redesigned, 519
Eire Great Southern Railway, 4-6-0 Express Locomotives, (363)
Electroflo Meters Co., Ltd., Boiler Control Instruments, 413; Control System for Clarence Dock Power Station, 460, 472
Ellison, G., Ltd., Switchgear for Clarence Dock Power Station, 463
Engel, F. V. A. E., and A. J. Davies, Velocity Profiles and Flow of Fluids through a Contracted Pipe Line, 720
Engineers' Guild, Policy and Activities, (562), 584
English Electric Co., Ltd., Capacitor Motors, Split-phase Motors, Motor-driven Suds Pumps, Flameproof Draw-out Switch Pillar, 224
English Steel Corporation, Large Railway Wagon, (733)
Eppelsheimer, D., The Development of Continuous Strip Mills, 502, 513
Ericsson, L. M., Co., Automatic Road Traffic Control, (617)
Esla Viaduct, Spain, 147, 150
Esslingen, Masch., The Production and Use of Dry Ice, 560
"Ettrick," P. & O. Troopship, Barclay Curle and Co., Ltd., (227), 719
Evans, E., Obituary, (281)
Evans, H., and C. Sykes, Specific-Heat/temperature Curves, 505
Eyston, Captain G., World Land Speed Record, (13), (253), (335)

F

FAIRBAIRN, Lawson, Combe, Barbour, Ltd., Engineering Firms and Rearmament, 31
Fairey Aviation Co., Air Liner Ordered by Air Ministry, (591)
Fairfield Shipbuilding and Engineering Co., Ltd., H.M. Aircraft Carrier "Implacable," 405
Farnsworth, W. M., and E. R. Johnson, American, Electric Furnace Practice, 504
Federation of British Industries, Industry and Defence Committee, 579
Fen Drainage Proposal, 189
Ferguson Brothers (Port Glasgow), Ltd., Twin-grab Hopper Dredger "Foulney" for L.M.S., (335)
Ferguson-Brown, Ltd., Four-cylinder Tractor and Cultivator, 99; Tractor Works, Huddersfield, 729
Ferguson, John, Obituary, 505
Ferguson, Pailin, Ltd., Visit to Switchgear Works, 611
Fescol, Ltd., New Works, North Road, London, N.7, 477
Fisher, S. H., Acceleration of Railway Services, 706
Fishleigh Rotary Cultivator Co., Ltd., Portable Winch, 72
Fleming, A. P. M., Personnel in Industry, I.E.E. Presidential Address, 467; (Leading Article, 473); (Letter, 537)
Flender Variable-speed Gear Unit, Hansel and Schmitt, Ltd., 634
Fletcher, S. B., The Upbringing of Engineers, 537
Foley, Sir E. Julian, The State and the Marine Engineer, 399
Folkestone Harbour Improvements, (471)
Follows, J. H., Obituary, (673)
Ford Motor Co., Ltd., Welded Waterless Gasholder, Horseley Bridge and Thomas Piggott, Ltd., 127; Engine Decarbonising, New Method, (733)
Forster, F., and W. Koster, Elasticity and Damping in relation to the State of the Material, 626
Forth Estuary Bridge Scheme, 137
Foundry Plant and Machinery, Ltd., Sand-slinger Moulding Machine, 250
Fowler, Sir Henry, Obituary, 446
Fowler, John, and Co. (Leeds), Ltd., P.A.M. Petrol Engine, and 3-kW Lighting Set, 126
Fraser and Chalmers Engineering Works, Drag Scraper for Belfast Harbour Power Station, 210
Fredericton, N.B., Wharf Reconstruction, R. F. Legget, 301
Freeman, S. B., Nominated President, Society of Consulting Marine Engineers, (443)
French National Railway Co., Economies, 349, 429
French, W. and C. Ltd., River Nene Improvement Works, 641, 646; (Correction, 684)
Froude, William, Laboratory, Annual Report, 431
Fuel Research Board, Annual Report, 689, 700
Furness Shipbuilding Co., New Floating Dock for Durban, (149)

G

GARDNER, A. C., Engineers and World Peace, 480
Garras, A., and C. Usinger, Bog Blasting, 140
Gayler, M. L. V., Copper-Aluminium Alloys, 536
General Aircraft, Ltd., Acquire British Aircraft Manufacturing Co., (121)
General Electric Co., Ltd., Directors' Fifty Years' Service, (13); Steam Sterilising Chest, 39; Electric Rolling Mill and Furnace Equipment, 206; Lighting System at Glasgow Exhibition, 225; Ore Conveyor Belt Lighting in South Africa, 235; High-rupturing Capacity Cartridge Fuses, 289; Oil Circuit Breakers with Spring-closing Mechanism, 371; Centralised Control of Public Lighting and Off-peak Loads, 388; Voltage Regulators of Ungoverned Generating Sets, 154
Genissiat Dam, River Rhône, 722, 734
Gent and Co., Ltd., An Electrical Staff Locator, 182; Air Raid Warning Syrens, 571
Geological Museum, Rotating Globe, 405
Gerard, I. J., and B. G. Dickens, Stressed-skin Structures, 644
Geyer, E. W., Energy Content of High-pressure Gases, 256
Gheselayagh, A., Engineers and the State, 145
Gibbons Brothers, Ltd., New Coking and By-Products Plant at West Hartlepool, 86, 94, 113, 122
Gibbons, H. J., The Grid and the Oil Engine Industry, 644
Gillett and Johnston, Ltd., Synchronous Electric Tower Clock at Norwich, 251
Gilman, F. (B.S.T.), Ltd., Rotary Milling Cutters, 569
Gilsons of Bath, New Cornish Stone Quarry, 570
Glasgow, Empire Exhibition, Attendance Figures, (149), (253), (501); Description of Exhibits, 5, 34, 62, 87, 115, 147, 172, 198, 224, 249, 273, 305, 330, 354, 385, 412, 438, 468; Coal Pavilion, 412; Model Cane Sugar Factory, 330; "Steel Industry, Scotland" Pavilion, 468; United Kingdom Government Pavilion, 147, 172, 198
Glasgow Railway Engineering Co., Ltd., 12-Ton Wagon Axle, 469
Glasgow Water Supply, (281)
Glenfield and Kennedy, Ltd., Oil-fired Rotary Melting Furnace, 42, 52
Gleniffer Engines, Ltd., 24, B.H.P. Oil Engine for Stainless Steel Lifeboat, 250; 120 B.H.P. and 72 B.H.P. Oil Engines, 500
Godfrey, Sir George, and Partners, Ltd., Blowers and Exhausters for Industrial Application, 614
Goldman, B., and N. C. Jones, The Modern Portable Gas Producer, 712, 740; (Leading Article, 703)
Gooch and Son, Potato Sorter with Roller Conveyor, 72
Goodacre, E. J., The "Buried City"—Report on Underground Planning, 283
Goodwin, Barsby and Co., Ltd., Crushing and Screening Plant at Cornish Stone Quarry, 570
Goole Docks Improvements, (13), 31
Gordon Bennett Balloon Race, (335)
Gordon, Lord, Dudley, Elected President, British Engineers' Association, (443); Engineering Industrial Organisation, 654
"Graf Zeppelin," New German Airship "L.Z. 130," 325, (335)
Grand Coulee Power Project, Generators, (363); Large Turbines, (733)
Grand Union Canal, New Birmingham Warehouse, (363); Developments, 459; Shipping Interests, (673)
Grant, A. J., Elected Master Cutler, (281)
Grant, J. Fergus, Canadian Electrical Industry, (533)
Gravelly Point Airport, U.S.A., (701)
Gray, W. T., and E. S. Pritt, The Metadyne Applied to Electric Traction, 538
Great Western Railway, New Goods Wagons, (67); Armour Plate Glass for Express Engines, (93); School for Road Motor Drivers, (149); Winter Train Service, (281); New Railcars, (281); Penzance Station Alterations, (415); Whitland Station Improvement Scheme, (501); Track-relaying Programme, (533); Weaver Viaduct Reconstruction, 551; Paddington Signal-box Fire, 607, (617), (673); Westbourne Bridge Signal-box Fire, (733); Appointments, (733); Line Subsidence Between Truro and St. Austell, (733)
Greatrex, F. B., Transients in Transformers, 231
Green, J. R., Relaxation Applied to Calculate the Flow of a Compressible Fluid, 231
Greenly, J. H. M., President, Institute of Fuel, (227)
Greenwood and Batley, Ltd., A Flameproof Locomotive, 451
Gregory, Sir Richard, Retirement from *Nature*, 579
Gresham, S. T., Obituary, 96
Griffiths, G. J., Retirement from Thames Conservancy, 551
Griffith, Sir J. Purser, Obituary, 475
Grimaud, Gustave, Reinforced Concrete Screw Piles, 26
Groves, A. W., Manganese, 546
Grubb, Sir Howard, Parsons and Co., 74in. Pretoria Reflector, 298, 326, 336, 353, 364 (*Supplement, September 16th*, 1938)
Guest, J. J., Mechanical-optical High-speed Indicator, 392
Gutteridge, H., and H. Chatley, Engineering Aspects of Air Raid Protection, 529

H

HACKBRIDGE Electric Construction Co., Ltd., An Extra Low-voltage Lighting Transformer, 398
Hadfields, Ltd., Railway Junction at Newcastle-on-Tyne, L.N.E.R., 571
Hague, J. L., and H. A. Bright, Determination of Boron in Steel and Cast Iron, (335)
Haldin, P., A Reserve of Ships, 633
Hall, E. E., Sealing Porous Aluminium Castings, (389)
Hammersmith Bridge Repairs, 165
Hammond, R., Engineers and Air Raids, 538
Hams Hall Power Station, Birmingham, New Cooling Towers, (671)
Hancock and Co. (Engineers), Ltd., "Pullomax" Sheet Metal Shearing Machines, 598
Hansel and Schmitt, Ltd., Flender Variable-speed Gear Unit, 634
Hanson, D., and W. T. Pell-Walpole, Antimony's Effect on Strength of Tin, (533)
Hanson, J., and D. Williams, Gust Loads on Tails and Wings, 120
"Hardinge" Constant-weight Feeder, International Combustion, Ltd., 63
Harland and Wolff, Ltd., Re-engining the "Carnarvon Castle," (13); Re-powering "Warwick Castle," 379; Output in 1938, (701); Union-Castle Liner "Durban Castle," 719
Harrison, G. M., The Railway Position in North America, (652)
Harrison, McGregor and Co., Ltd., Holt Bracken Breaker, 98; Swath Turner and Collector, 99
Hart, R. J., H. R. Petersen, and T. L. Crossley, Paper from Waste Wood, (93)
Harvest Saver and Implement Co., Ltd., Grass Cutter-collector Machine, Electric Fence Control Unit, 126
Harvey, G. and A., Ltd., Spindle Milling Machine and Lathe with Motor for Quick Traverse, 581; 10in. Boring and Milling Machine, 596
Hawthorn, Leslie, R. and W., and Co., Ltd., Launch of H.M. Flotilla Leader "Jervis," (309); Launch of H.M.S. "Kelly," (471)
Hay, David, Obituary, 506
Hayes, H. C., and E. Klein, Determining Natural Modes of Vibration of Structures, 682
Head, Wrightson and Co., Ltd., Large Railway Wagon for English Steel Corporation, (733)
Heating, Ventilating and Air Conditioning Co., Exhibition in 1939, (533)
Henry Hudson Bridge, Harlem River, Upper Deck, 512
Henshaw, A., Winner of King's Cup Air Race, (41)
Herbert, Alfred, Ltd., Taylor "Feedright" Weighing and Rationing Machine, and "Drinkrite" Automatic Water Bowls, 98; Utility Head and High-speed Tapping Machine, 290; No. 2S Motor-driven Chasing Lathe, 451; Improved Toolmakers' Microscope (Zeiss), 477; Electrically Driven 4 SE Capstan Lathe, 520
Hewes, L. I., Roads in the United States, (227)
Higgs Motors, Ltd., Low Starting Current Motors, 334; Educational Film, (733)
Highway Trailer Co., Pole-setting Equipment, 100
Hildage, H. T., Incentives, 119
Hill, Charles, and Sons, Ltd., Motorship "Brockley Combe," (253)
Hirshfeld C. F., and R. M. Vanduzer, Heat Generated Energy, 636
Hoadley, E. E., and H. P. Baker, Centralised Automatic Control of Street Lighting, 99
Holloway, J., Defensive Rearmament Production, 450
Holman Brothers, Ltd., Loading from a Rock Dump by Scraping, 261

Holroyd, John, and Co., Ltd., Slotting, Profile Milling, and Rifling Machines, 665
Hope, Henry, and Sons, Ltd., Rotating Globe, 147
Hornbuckle, T., Address to Diesel Engine Users Association, 21
Horne, L. R., Electric Propulsion of Ships, (733)
Horseley Bridge and Thomas Piggott, Ltd., A Welded Waterless Gasholder at Ford Works, 127
Horstmann, Ltd., Screw Loosening Device, 20
Hotine, L., and P. H. Smith, Oil Engines in B.B.C. Stations, (471)
Houk, I. E., Stresses Around Galleries in Concrete Dams, 382
Howe, G. W. O., The Concepts and Language of Electrical Engineering, 262; (Leading Article, 255)
Hughes, Howard, Record New York to Paris Flight, (67); World Flight Completed, (93)
Hull, Paragon Station, Resignalling, L.N.E. Railway, 49
Humber Estuary Bridge Scheme, 137
Humphries, Sir Herbert, Obituary, 45
Hutchinson, A., Obituary, (253)

I

IMPERIAL Airways, Ltd., New "Ensign" Air Liners, (443); New Long-range Flying Boats, (501); Annual Report, (533); New Services, (533); Annual Meeting, 551; Mr. W. L. Runciman to Join, (617), "Floating" Hotel at Mozambique, (733)
Impey, A. C. W., Railways and the Transport of Iron and Steel, (41)
Industrial Welfare Society, Annual Meeting, 579
Inglis, C. E., Vibration in Ships and Aircraft, 307
Inglis, Dr. C. E., Pencil Portrait No. 18, November 11th, 1938
International Combustion, Ltd., "Hardinge" Constant-weight Feeder, "Ty-Rock" Vibrating Screen, 63
International Corrodeless Co., "Royal" Metal Treatment Process, 89
International Electrotechnical Commission, Banquet, (41)
International Engineering Concessionnaires, Ltd., "Silvercote" Thermal Insulating Material, (78)
International Engineering Congress, Glasgow, 16, 50, 77, (546), (563)
International Harvester Co., Ltd., W.14 Tractor, 39
International Nickel Co. of Canada, Ltd., Nickel Development, 709
International Technical Developments, Ltd., Concrete Petrol Tanks, La Paroi Hydraulique, 732
"Iscor," Mr. G. A. Jenkin's Appointment, 52; Reappointment of Dr. H. J. van der Bijl, 291; Dismissal of Employees, 655; Steel Production, 711

J

JARROW Free Ferry, (701)
Jarrow Industries, New, (363)
Jarrow Metal Industries, Ltd., New Works, 490
Jarrow Tube Works, Ltd., New Works, (227), 490
Jenkin, G. A., Appointed London Representative of "Iscor," 52
Jenkins, Rhys, Ironfounding in England, 599
Jicwood, Ltd., New Constructional Material ("Samsonow Jicwood"), 682
Johnson, E. R., and W. M. Farnsworth, American Electric Furnace Practice, 504
Johnson, P., The Past, Present, and Future of the British Agricultural Engineer, 689
Johnson, T. W., Retirement from Natal Line, (41)
Johnston, K. H., Railway Axle Seat Failures, 226
Jones, A. A., and Shipman, Ltd., Electrically driven Sensitive Drilling Machines, 521; Unit-head Drilling and Tapping Machines and Machine for Drilling Fly-wheels, 580
Jones, E. H. (Machine Tools), Ltd., A Multi-milling Machine, 182; H-Gear, 609
Jones, G. O., Awarded Busk Studentship in Aeronautics, (67)
Jones, J., Electricity in Mines, (451)
Jones and Laughlin Steel Works, Steel Research Laboratory, 572
Jones, N. C., and B. Goldman, The Modern Portable Gas Producer, 712, 740; (Leading Article, 703)
Jones, R. F. Lloyd, Airport Design, (443)
Jones, T. C., and Co., Ltd., New Contractor's Crane, 625
Jones, Sir W. J., Obituary, 447
Joseph, R. A., Engineers and the State, 174

K

KARACHI, India, Water Supply of, D. B. Adwani, 588
Keewatin, Ontario, Wharf Reconstruction, R. F. Legget, 302
Keith Blackman, Ltd., Air Heating Unit, 625
Kelly, S. F., A Perspective of Geophysics, 288
Kendal and Gent (1920), Ltd., Heavy-duty Plano-milling Machine, 692
Kennedy and Kempe, Ltd., Spiral Strake, and "K & K" Earth Anchor, 99
Kensit, H. E. M., Shasta Dam, California, 677
Kent, Sir Walter, Obituary, (565), 598
Kershaw, A., Machine Tool Castings, 119
Kestner Evaporator and Engineering Co., Ltd., Pickling Acid Recovery Plant, 508
Kidner, P. C., Elected President, Institution of Automobile Engineers, (357); Presidential Address, 379
King, G. W., Ltd., Selective Conveyor Installation at Morris Engine Factory, Coventry, 21
King's Cup Air Race, A. Henshaw, (41)
Kingston By-pass Experiments, (262)
Kingston Electricity Failure, 703
Kingston, J. R., A Precombustion Ignition Coal-Oil Engine, 70
Kitfield, P. H., Experience with Divided Highways, (227)
Klein, E., and H. C. Hayes, Determining Natural Modes of Vibration of Structures, 682
Kobold, J., The Production and Use of Dry Ice, 560
Kodak, Ltd., Refrigeration in Lens Making, (563)
Koster, W., and F. Forster, Elasticity and Damping in relation to the State of the Material, 626
Krangede Hydro-electric Power Scheme, Sweden, 193, 202, 218, 244
Krupp Treibstoff, Low Temperature Coke Process, (415)
Kryn and Lahy (1928), Ltd., New Contractor's Crane, 625
Kuibyshev Hydro-electric Power Station, (399)
Kussmann, A., Control of Magnetic Quality by Surface Treatment, 474

L

LACEY, J. M., Tube Wells and Electric Development in India, 554
Laing, Andrew, Lecture on the Molecular Basis of the Strength of Materials, Sir W. Bragg, 572; (Leading Article, 565)
La Mont Boiler Installation at Works of G. and J. Weir, Ltd., John Thompson Water Tube Boilers, Ltd., 367, 395; Test Figures, 626; (Letter, 424)
Lancashire Dynamo and Crypto, Ltd., Planer Drive, 690
Lancashire's Transport Problem, 31
Land, E. S., United States Mercantile Marine, (389)
Lang, J., and Sons, Lathe with A.C. and D.C. Motors, 665
Langstone Harbour Airport, (673)
L'Anse au Beaufils Fishing Harbour, Quebec, 271
Lanz Tractor Co., Ltd., "Bulldog" Oil-engine-driven Tractors, 126
Larke, Sir William, Welding Research, 431
Latil Industrial Vehicles, Ltd., Tractor Fitted with Producer Gas Plant, 72
Laurence Scott and Electromotors, Ltd., Welding Generator, 682
Lawson, Douglas, and Co., Ltd., Split Pulley for Belt Drives ("Destron"), 510
Laystall Engineering Co., Merger with Joshua Bigwood and Son, Ltd., (227)
Lea, F. C., Torque Converter for Motor Cars, 276
Lea Recorder Co., Ltd., "Uni-meter" Coal Meter, 413
Legget, R. F., Some Canadian Wharf Structures of Steel Sheet Piling, 270, 301
Le Grand, Sutcliff and Gell, Ltd., Lower Green Sand Water Bores at Slough, (25)
Lehigh Coal and Navigation Co., American Coal Mine Blasting, 264
Leipzig Port Extensions, (13)
Lepper, G. W., Oil Drilling in Great Britain, 519
Lessing, R., Smoke Pollution in London, 379
Levenger, M., Obituary, 705
Levinstein, H., "Sir William Perkin's Adventure, and What Has Come of It," (591), 615
Leyland Motors, Ltd., Fire Escape with a Life-saving Cage, (617)
Liddell, R. R., London Docks, (645)
Lima Locomotive Works, 4-8-4 Powerful Locomotives, (443)
Lincoln Arc Welding Prize, (389)
Lind, Peter, and Co., Ltd., Waterloo Bridge, 222, 228, 669, 674; Boots New Factory at Beeston, Notts, 618, 621
Lions' Gate Bridge, Vancouver, (335)
Lisbon Aerodrome, (149)
Lister, R. A., and Co., Ltd., Grass Comb, Market Garden Hoe, 37
Lithgow, Sir James, The Building of Ships: A British Survey, 4
Little, A. D., Inc., "Buna," 625
Liverpool Water Supply, (389)
Livesay, E. H., Mechanical Stokers on Locomotives, 207
Lloyd, A. H., and H. H. Beeny, Cutting Fluids and the Machine Tool, 420
Lloyd's Register of Shipping, Quarter's Shipbuilding Returns, 76, 424; Wreck Returns, (41), (563); Wreck Statistics for 1937, 102; Statistical Tables, 153; Annual Report, 546
Lock, C. N. H., S. H. Bateman, and H. L. Nixon, Wind Tunnel Tests and Charts of Airscrews at Negative Thrust, 145
Lockyer, Norman, Observatory, Sidmouth, (92)
Loetschberg Mountain Railway, Twenty-fifth Anniversary, (67)
London Balloon Barrage, 269
London, Midland and Scottish Railway, Goole Docks Improvements, (13), 31; "Coronation Scot" to Tour America, (13); Strengthening Monsal Dale Viaduct, 57; Quarry Blasting Operation at Caldon Low, (93); Derby School of Transport, 118; Penrith and Keswick Line, (121); London-Birmingham Railway Centenary, (149), (253), 325, (Leading Article, 337), 551; Oakley Railway Disaster Report, 165; Scottish Committee, (201); Wagon Works Improvements, (201); All-steel Wagons, (227); Peak Forest Station Goods Train Derailment, (227); "Lion" Locomotive, 243; Conveyors at Holyhead, (253); Derby Staff College, (281); Experimental Oil-engined Train, (309); Winter Services, (335); Hopper Dredger "Foulney," (335); Station Alterations, (363); Evening Classes, (389); Haddon Tunnel Goods Train Mishap, (415); Staff Films, (415); An Inexcusable Strike, 445; North Union Railway Centenary, (471); Strengthening Unstone Viaduct, (501); Weaver Viaduct Reconstruction, 551; Appointments, (563), (682); Wigan Signalling Scheme, (563); Freight Services, (645); Transport of Telephone Equipment, (645); New Bridge near Wembley, (657); New Station at West Allerton, (673); Highest Line to Close, (701); Shock-absorbing Wagons, (733)
London and North-Eastern Railway, Southend Line Colour Light Signals, (13); Castlecary Accident Report, 15; New "Flying Scotsman'" Trains, 40; "Coronation" Train Speed Record, (41); (Leading Article, 44), 89, (264); Resignalling of Paragon Station, Hull, 49; An American Locomotive Bell, 57; Ivatt "Atlantic" Locomotive No. 3279 Conversion, (67); "Pacific" Locomotive No. 4476 Millionth Mile, (67); Improvements at Frodingham and Scunthorpe, (93); Counter Pressure Brake Test of Locomotives, 142; Retirement of Mr. W. Whitelaw, 152; Excursion by Old "Flying Scotsman," (175); Ipswich Locomotive Depôt, (201); Automatic Train Control between Edinburgh and Glasgow, 212; Large Wagons, (253); Sir R. W. Matthews Appointed Chairman, 379; New "Hook Continental" Train, 420; Goods Train Derailment Near Nottingham, (471); Edinburgh Signalling, (501); Shenfield Electrification, (533); Appointments, (533), (645); Hadfield "Era" Manganese Steel Junction at Newcastle-on-Tyne, 571; King's Cross Station Improvements, (591); 1939 Programme, (591); Withdrawal of Trains, (645); New Wagons, (701); New Locomotives, (701)
London Passenger Transport Board, Moorgate Joint Station, 380; Annual Report, 489; Waterloo and City Railway, (533), (645); Uxbridge Station, 607
Lumsden Machine Tool Co., Ltd., Vertical Grinding Machine at Ferguson-Brown Tractor Works, 730
"Lutine" Salvage Attempt Abandoned, (309)
Lynde, G. G., Obituary, 152

M

MACEWAN, H. Camden, Electric Heating for Merchant Ships, (591)
MacIvor, D. T., The Grid and the Papermaker, 672
Mackintosh, E. E. B., Parsons' Rotating Cylinder Steam Engine, 174
MacLellan, P. and W., Ltd., River Findhorn Bridge, and 20-Ton Implement Truck, 439; P. & O. Liner "Naldera" to be Broken Up, 579
Maginness, E. J., Obituary, (733)
Malborn, J., Continuous Rolling of Sheet and Tin-plate, 224
Mallet Articulated Locomotives on Denver and Rio Grande Western Railroad, 238
Manchester College of Technology, Dr. J. E. Myers Appointed Principal, 83
Manchester Airport, The New, 1
Manganese Bronze and Brass Co., Ltd., Cement Sand Preparation Plant, Augusts, Ltd., 398
Mansions Motor Co., Ltd., Driving Earth Electrodes, 422
Marconi Co., Retirement of Two Wireless Pioneers, P. W. Paget and C. Rickard, (149); (Correction, 175)
Marine Parkway Bridge, New York, 406, 432, 444
Markham Colliery Disaster Report, 459
Marks, Lord, Obituary, 366
Marseilles Dockers' Dispute, 215, 267, 295, 323, 349
Marsh Brothers (Electric), Ltd., Equipment for West Hartlepool Coking Plant, 115
"Marshall" Roots High-speed Blowers and Exhausters for Industrial Application, Sir George Godfrey and Partners, Ltd., 614
Marshall, Sons and Co. (Successors), Ltd., Threshing Machine, 125
Mason, C. C., Engineering Instruments, 329
Massey-Harris, Ltd., Harvesting Tractor, 125
Mather and Platt, Ltd., Pumps for Clarence Dock Power Station, 461
Matheson, Sir Charles, Retirement from Orient Line, (201)
Matthews, Sir R. W., Appointed Chairman, L.N.E.R., 379
"Mauretania," Cunard White Star Twin-screw Liner, Cammell Laird and Co., Ltd., 143 (*Supplement, August 5th*, 1938), 178, (645)
Mavor and Coulson, Ltd., Belt Conveyor Model at Glasgow Exhibition, 414
Mayo Composite Aircraft, (93), 123, (175), (201), (335), (389), (415), (471), (617)
McAra, A., Large Hot Water Storage Tank, 20
McEwen, E., Gear Tooth Deflection, 500
McLaren, J. H., Ltd., Twin-cylinder-20 B.H.P. Oil Engine, 125; Earth Moving Scoops, 125, 342
McNeil, Charles, Ltd., Auto-Stoke "W" Type Boiler, 6
Mechans, Ltd., Stainless Steel Ship's Motor Lifeboat, 250
Meer, A. G., Pilger System of Rolling Mill Equipment at Jarrow Tube Works, 491
Melchett Medal Awarded to Professor R. V. Wheeler, (67)
Mercedes-Benz Co., Cross-country "Hunting and Pursuit" Car, 448
Merkl, F., Use of Hydrogen in Quarry and Rock Blasting, (335)
Merrett, W. H., Obituary, 505
Merritt, H. E., Gear Performance, 2, 32, 58, 84, 110, 138, 166, 190
Merryweather and Sons, Ltd., "Greenwich" Model Hatfield Fire Engine, and Trailer Fire Engine, 72; Mobile Aerial Unit for Television, (201)
Metalectric Furnaces, Ltd., 15-Ton Electric Furnace for Jarrow Industries, 490
Metropolitan-Vickers Electrical Co., Ltd., Summer School for Engineers, 57; 54,000-kW Turbo-generator Set for Brimsdown, A.C. Winding Plant at Pinxton Colliery, "Alnor" Velometer, Transformer Voltage Regulator, 88; Inverted Synchronous Induction Motors, 200; Arc Suppression Coils, 260; Turbo-generators at Clarence Dock Power Station, 461; Machine for Washing Meter Parts, 510; The Metadyne Applied to Electric Traction, 538; Direct-reading Air Velocity Meter, 571; Motors for Individual Electric Driving, 666, 690; Automatic Arc Welding Machine, 670
Metropolitan Water Board, New Laboratories, 431; Croydon Water Supply Acquired, 489; Annual Report, 596; Retirement of Mr. F. E. F. Durham, 719
Meyenberg, F. L., Hand Work and Industrial Psychology, 537
Mid-Kent Water Co., Water Softening Plant at Newnham Pumping Station, 480
Miller, D. C., "The Evolution of Physics," 613
Miller Electric Manufacturing Co., An Electric Arc Saw, (227)
Miller, J. L., Spot and Projection Welding, 693
Mining Research Laboratory, Report, 719
Mirick, R. F., Laying Sewers over Quicksand, (281)
Mirrlees, Bickerton and Day, Ltd., First British Oil Engine, 273, (Letter, 316); "U" Type Six-cylinder Oil Engine, "Imo" Screw Pump, 274; "Combustioneer" Mechanical Coal Stoker, 274
Mirrlees, Watson Co., Ltd., Axial Flow and Self-priming Vertical Pumps, Brake Drums, 275; "Panohmer" Recorder, Sugar Subsider, Rotary Leaf Filter, 355
Mississippi River, Straightening, 742
Mitsubishi Heavy Industries Co., Two New Japanese Liners, (701)
"Model Engineer" Exhibition, (121), 343
Modern Foundries, Ltd., The Modern Manufacture of Machine Tool Castings, J. Blakiston, 102; (Letter, 119)
Modern Roads Movement, Formation of, 431
Monarch Machine Tool Co., Hardened Lathe Bed, (673)
Mond Nickel Co., Ltd., Nickel Cast Iron for Tar Distillation Stills, 129
Mond, Sir Robert, Obituary, 459
Monsal Dale Viaduct, Strengthening, L.M.S. Railway, 57
Moorgate Joint Station, L.P.T.B., 380
Mordey, W. M., Obituary, 44
Morris, J. T. MacGregor, Retirement from Queen Mary College, 31
Morris Motors, Ltd., "M" Ten-Four Car, 449
Moscow Dynamo Works, High-speed Electric Locomotive, (471)
Mossel Bay Harbour, South Africa, 52
Motor Show at Earls Court, (392), 448, 464, 498
Mott, Sir Basil, Obituary, 313
Mott, Hay and Anderson, Moorgate Joint Station, L.P.T.B., 380
Moulton, F. R., Influence of Astronomy on Science, 453
Mount, A. H. L., Annual Report, Chief Inspecting Officer of Railways, 177
Mount, V., Detection of Cracks Round Rivet Holes, (13)
Mowat, Brig.-General M., Retirement from Institution of Mechanical Engineers, (645)
Mowlem, John, and Co., Ltd., Moorgate Joint Station, L.P.T.B., 380
Murray, J. O'Hara, and Co., Pilger Rolling Mill Equipment at Jarrow Tube Works, 491
Murray, W. B., and J. S. Sproule, World Gliding Record, (67)
Myers, Dr. J. E., Appointed Principal, Manchester College of Technology, 83

N

"NALDERA," P. & O. Liner, to be Broken Up, 579
Natal Electricity Development, 655
Nathan, Sir M., Governor of Hong Kong, 104
National Coal Convention, The Fourth, (443)
National Institute of Industrial Psychology, Special Course, 500
National Physical Laboratory, Annual Inspection, 21; Dr. C. G. Darwin Appointed Director, 405; Testing Electrical Switchgear, 431
National Pulp and Paper Co., New Mill at Durban, 291
National Research Council of Canada, High-tension X-ray Equipment, 746
National Shipbuilders' Security, Ltd., Sale of Pallion Shipyard, (201); Sale of Greenock Shipyard, (563)
National Smelting Co., Ropeway at Avonmouth Works, British Ropeway Engineering Co., Ltd., 737
National Union of Students, Vacation Employment for Students, 626; (Letter, 672); "The Moral of Meal Monday," 647; (Letters, 700, 731)
Nautical and General Industries, Ltd., "Hydrogap," Streamlined Rudder, 405, 708
Neal, R. H., and Co., Ltd., 3-Ton Timber Yard Crane, 282, 288
Neil, J. and J. (Temple), Ltd., Sprinkler Mechanical Stoker, Controller for Colliery Tubs, 440
Nene, River, Improvement Works, W. and C. French, Ltd., 641, 646; (Correction, 684)
Neuhaus, H. M., Early History of the American Navy, 130
New South Wales Electrical Development Scheme, 1
New South Wales Railways, Statistics, (563)
New York, Ward's Island Sewage Works, 555; Seagoing Sludge Vessels, 586
New York World's Fair, (93), (363), 400, (415)
New Zealand Petroleum Co., Ltd., Oil Prospecting in New Zealand, (149)
New Zealand Railways, Statistics, (533), (645)
Newhouse, F., The Nile Flood, 304; Soil Erosion, 497, 522
Newlands, Alexander, Obituary, 257
Newman, Hender and Co., Ltd., "Newman Milliken" Glandless Lubricated Plug Valves, "Newman Bowler" Stop Valves, 306
Newnham Pumping Station, Mid Kent Water Co., Water-softening Plant, 480
Newport News Shipbuilding and Dry Dock Co., Successor to the "Leviathan," (93); United States Liner "America," (673); Large Turbines for Grand Coulee Power Project, (733).
Niagara Bridges, 709
Nicholson, W. N., and Sons, Ltd., Swath Turner, and Spring Balanced Ridger, 97
Nile Floods, 243, (281), 304
Noal, F. W., Obituary, (591)
Noranda Power Project, Ottawa River, 388

Norddeutscher Lloyd Fleet Modernisation, (13)
"Normandie," French Line Liner, Hundredth Atlantic Crossing, (67), 83; Proposed Sister Ship, 457
Norris, Henty and Gardners, Ltd., Eight-cylinder, 136 B.H.P. Marine Oil Engine, 466
North British Locomotive Co., Ltd., Locomotive Order for New Zealand, (389)
North-Eastern Marine Engineering Co., Ltd., Triple-expansion Reheater Steam Engine, 200
North Union Railway, Centenary, (471)
Northern Aluminium Co., Ltd., Aluminium Alloy Lorry Body, 156
Northern Ireland Transport, 607, (617)
Northern Pacific Railroad, U.S.A., Large Turntables, (617)
Norwich Synchronous Electric Tower Clock, Gillett and Johnston, Ltd., 251
Nuffield, Lord, Purchase of Riley (Coventry), Ltd., (309)
Nuttall, E., Sons and Co., Ltd., Moorgate Joint Station, L.P.T.B., 380

O

OAKLEY Railway Disaster Report, L.M.S., 165
Ockenfels, F. H., "Procedo" Rotating Lathe Centres, 261
Ogale Glass Works, Ltd., New Glass Factory in Mysore, (253)
Old Centralians, Engineering and Modern Economic Structure, Discussion, (372)
Oliphant, M. L. E., The Contribution of Engineering to Physics, 319
"Oranje," Netherland Steamship Co.'s Motorship, 12,500 S.H.P. Oil Engines, Sulzer Brothers, 361
Ormerod Shapers, Ltd., Swivel Ram Slotting Machine, 653
Orrok, G. A., Superimposing in Power Stations, 77
Osaka Port Works, (733)
Oshawa, Ontario, Wharf Construction, R. F. Legget, 301
Otavi Copper Mines, South-West Africa, 52
Owen, J. B. B., and J. Taylor, An Approximate Method of Stressing the Struts of a Stiff-Jointed Framework, 145

P

PACIFIC Steam Navigation Co., Acquired by Royal Mail Lines, Ltd., (415)
Palmer, S. J., Stresses in Welded Pipes, 329
Panama Canal Locks, C. F. W. Andrew, (335)
Panama Canal Traffic, (281)
Pardoe, G. T., Oil Drilling in Great Britain, 259
Parent, E., New Form of Filing Cabinet, 235
Paris Aircraft Show, (501), 648
Paris Motor Car Show, 440
Paris Suburban Sewerage Works, 436
Paris Underground Railway, (41)
Paris Underground Roads, 749
Parker Dam, U.S.A., Completion, 57
Parliamentary Science Committee, Annual Meeting, (701)
Paroi Hydraulique, La, Concrete Petrol Tanks, 732
Parsons, C. A., and Co., Ltd., 50,000-kW Turbo-Alternator at Dalmarnock, 60, 68 (*Supplement, July 15th*, 1938)
Parsons, Sir Charles, and Marine Propulsion. S. S. Cook (Memorial Lecture), 638
Parsons Engineering Co., Ltd., Dual Engine Generating Set, 157
Parsons Marine Steam Turbine Co., Ltd., 3500 S.H.P. Geared Steam Turbine Unit Model, 199; "Simplex" Turbine Drive Model, Low-pressure and Astern Turbine Model, 438
Passenger and Express Air Services, Ltd., Canadian Air Navigation Company, (701)
Paterson Engineering Co., Ltd., Engineers and Export Trade (Annual General Meeting), 243
Paterson Hughes Engineering Co., Ltd., "Phec" Coal Elevator, 413
Pearce, J. G., High-duty Cast Irons (I. Mech. E. Research Committee's Report), 695
Pearson, T. F., Nickel Silver, (13), 36
Pell-Walpole, W. T., and D. Hanson, Antimony's Effect on Strength of Tin, (533)
Pelly, K. R., British Shipping Problems, 109
Penman and Co., Ltd., Self-contained "Economic" Boiler, 412
Perkin's, Sir William, Discoveries, (591), 615
Peters, M. A., Low-resistance Electric Cable, (617)
Petersen, H. R., R. J. Hart, and T. L. Crossley, Paper from Waste Wood, (93)
Petters, Ltd., British Oil Engines and Shipyard Orders, 1; "Superscavenge" Two-stroke Oil Engine, 10, 570; Air-cooled and Hopper-Cooled Petrol/Paraffin Engines, 37; Agreement with Brush Electrical Engineering Co., Ltd., 297; Gift to Employees, (701); Reorganisation at Loughborough Works of Brush Electrical Engineering Co., Ltd., 719
Pezzi, M., Altitude Record for Aeroplanes, (471)
Philadelphia Sewage Treatment Scheme, (415)
Philip and Son, Ltd., Royal Research Ship "Research," 189
Philipp, Paul, Universal Spirit Level, 343
Philippe, C. D., Reinforced Wood as a Structural Material, (645)
Philplug Products, Ltd., Plugging Material for Screws, 290
Pilger Rolling Mill Equipment at Jarrow Tube Works, Masch. Meer A.G., 491
Plowden, E. F. J., "The Moral of Meal Monday," 731
Pointe au Pic, Quebec, Wharf Extensions, 272
Pollard, F., and Co., Ltd., Electrically Driven Sensitive Drilling Machine, 521
Pollitt, Colonel G. P., Grass Drying Plant, 206
Port Hope Wharf Reconstruction, Lake Ontario, R. F. Legget, 301
Port of London Authority, Annual Report, 217; Mr. J. D. Ritchie Appointed General Manager, 379
Portsmouth Power Station Extensions, (121); Accident, (533)
Pott, Cassels and Williamson, Under-driven Hydro Extractor, 355
Potter, A. A., Problems Before the Engineering Profession, 103; (Leading Article, 95); (Letters, 119, 145, 174)
Powell Duffryn Steam Co., Ltd., By-product Plant for South Wales, (93)
Powell, J. W., American Shipbuilding Standards, (673)
Power Transmission Association, Winding Up, (617)
Premier Carbon Black, Ltd., Canada's First Carbon Black Plant, 388
Pretoria Power Station Extensions, 545
Pretoria Reflector, 74in., Sir Howard Grubb Parsons and Co., 298 (*Supplement, September 16th*, 1938), 326, 336, 353, 364
Price, A. G., Obituary, (671)
Price, L. E., and G. J. Thomas, The Tarnishing of Silver and Silver Alloys and its Prevention, and Oxidation Resistance in Copper Alloys, 536
Price, T. L., Obituary, 506
Pringle, Sir John, Obituary, 96
Prior Burners, Ltd., "Mastoker" Underfeed Automatic Stoker, 413
Pritt, E. S., and W. T. Gray, The Metadyne Applied to Electric Traction, 538
Prozesky, R., "Procedo" Rotating Lathe Centres, F. H. Ockenfels, 261
Prym, W., "P K" Variable-speed Drive, 212

Q

"QUEEN ELIZABETH," Cunard White Star Quadruple-screw Liner, John Brown and Co., Ltd., 189, 340 (*Supplement, September 23rd*, 1938), 351, 357, 390, 393
"Queen Mary," Cunard White Star Liner, Mishap at Southampton, (149); New Atlantic Record, 165, 189; Staff Changes, (175); Hundredth Atlantic Crossing, (309); Docking Feat, (443)

R

RAGGED Rapids Hydro-electric Generating Station, Canada, 212
Rand Water Board, 373
Randupson Process of Cement Moulding, F. W. Rowe, 211
Ranson, E. C., Dry Mining Methods, 52
Rapid Transit Co., U.S.A., Petrol-electric Buses, 320
Rawlplug Co., Ltd., Screw Anchor, (284)
Raworth, A., Appointed Chief Electrical Engineer, Southern Railway, 351
Rayleigh, Lord, Science and Warfare, 204; (Leading Article, 204)
Reavell and Co., Ltd., Recent Developments in Automatic Regulation, 19
"Regent Tiger," Motorship, Swan, Hunter and Wigham Richardson, Ltd., 287
Rendel, Palmer and Tritton, New South Wales Electrical Development Scheme, 1; Waterloo Bridge, 222, 228, 669, 674; Centenary, 705
Rendle, B. J., Commercial Mahoganies, 36
"Research," Royal Research Ship, Philip and Son, Ltd., 189
Reuter, Dr.-Ing. H. C., Industrial Jubilee, (13)
Reyrolle, A., and Co., Ltd., Diagram Control Boards, "Dualock" Protective System, 34
Ricardo and Co., Engineers (1927), Ltd., Viscous Flow Air Meters, 743
Richards, G., and Co., Ltd., Large Boring and Facing Machine, 208
Richardson, H. W., Hurricane Damage in America, (471)
Richardsons, Westgarth and Co., Ltd., General Meeting, (149); Appointments, (201)
Richardsons, Westgarth Brown Boveri, Turbo-driven Gas Exhausters for West Hartlepool Coking Plant, 113
Riley (Coventry), Ltd., Purchased by Lord Nuffield, (309)
Riley, R., New Water Softening Material, 426
Rissik, H., Circuit Breaker Standards, 495
Ritchie, Mr. J. D., Appointed General Manager, Port of London Authority, 379
Road Transport (Defence) Advisory Committee, Constitution, (415)
Robb, Henry, Ltd., Ferry Ship "South Steyne," (41); "Cubahama," Fast Coastal Liner, 217
Roberts, D. E., Presidential Address, I. Mech. E., 463; (Leading Article, 473); (Letter, 537)
Robinson, R. S., Noise Reduction in Ships, 568
Robinson, T., and Sons, Ltd., Shaping and Preparing Machine for Timber Lock Gates, 176, 180; Centenary, (182); Double-end Tenoning Machine, Cross-cutting and Trenching Machine, Band Saw, 562
Robson, T., High-speed Indicators, 316
Rocquet, P., Liquid Formation on Tin-plates, (591)
Roe, A. V., and Co., Ltd., New Manchester Aircraft Factory, 189, (281)
Rolls-Royce, Ltd., New Aero-engine Factory at Crewe, (93); Works Extensions, (673)
Romer, J. F., Improving the Efficiency of Hand Work, 338; (Letter, 537)
Ross, R. G., and Son, Ltd., Electro-pneumatic Hammers, 249
Rosyth Dockyard, 633, 663
Rowe, F. W., The Randupson Process of Cement Moulding, 211
Royal Agricultural Society, Show at Cardiff, 37, 72, 97, 125
Royal Mail Lines, Ltd., Merger with Pacific Steam Navigation Co., (415)
Royal National Lifeboat Institution, Newbiggin Lifeboat, (501)
Royles, Ltd., "Milletherm" Feed-water Heater Boiler Level Control, 413
Ruston Bucyrus, Ltd., A Bulldozer or Grading Machine, 423
Ruston and Hornsby, Ltd., Horizontal Oil Engine, 16–20 B.H.P. Oil-engined Locomotive, 73; ¾-kW Petrol Lighting Set, 708

S

S.A.B.E.N.A., New Aircraft, (93)
Sahara Road Construction, 323, 631
St. Lawrence River Development, (13)
Saklatvala, Sir Nowroji, Obituary, 109
Salerni Torque Converter for Motor Cars, F. C. Lea, 276
Salter, C., The Spinning Card, 200
San Francisco World's Fair, 624
Sanders, Sir Charles, Obituary, 314
Schindler and Co., The Burgenstock-Hammetschwand Lift, 542
Schlesinger, G., The Cutting Angle of Twist Drills, 650
Schori Metallising Process, Ltd., New Method of Metal Spraying, 318
Scott, W. Harding, Obituary, 284
Scottish Development Council, Industrial Development Brochure, (602)
Scrutton, J. H., Obituary, (41)
Seaham Harbour, New Approaches, (253)
Seemann, H. E., Radiography, (121)
Sellar, W., Gear Tooth Deflection, 500
Selson Machine Tool Co., Ltd., "Volman" High-speed All-geared Lathes, 507
Serby, J. E., A Review of Some Full-scale Tests on Landing Flaps, 120
Serby, J. E., R. H. Francis, and P. Fortescue, Full-scale Tests of the "Airspeed Envoy," Type A.S.6 G., 624
Severn Estuary Bridge Scheme, 137
Sharon Steel Corporation, New Use for Spent Pickle Liquor, (285), (389)
Sharpness Docks, Electrification of Hydraulic Machinery, Vickers-Armstrongs, Ltd., 344
Shasta Dam, California, H. E. M. Kensit, 677
Sheepbridge Coal and Iron Co., Ltd., Air-swept Tube Mill, 87; Kennedy Slugger Crushing Machine, 88
Sheffield, Coisley Hill Sewage Works, 65
Sheffield Metallurgical Laboratory for the Admiralty, 689, 706
Short Brothers and Co., Ltd., New Long-range Flying Boats for Imperial Airways, (501); Mayo Composite Aircraft, (93), 123, (175), (335), (617)
Short and Harland, Belfast Aircraft Factory Extension, (201)
Shrewsbury School Laboratories, 351
Silentbloc, Ltd., Andre-Hutton Experimental Pump, 499
Simms, H. A., Noise Measurements Aboard Ship, 345
Simon Carves, Ltd., New Contact Sulphuric Acid Plant, F. W. Berk and Co., Ltd., 478
Simon, Henry, Ltd., Coal-handling Plant at Clarence Dock Power Station, 460, 472
Siviour, S. R., Wooden Poles in Transmission Line Service, (617)
Skempton, A. W., Settlement of Structures, 329
Smith, A. and W., and Co., Ltd., "Werkspoor" Crystalliser, "Rota" Pump, "Keyless" Sugar Mill Roller, 332
Smith, C. A. Middleton, The Burma-Yunnan Road and Railway, 692, 725
Smith and Houston, Ltd., Shipbreaking on the Clyde, (563)
Smith, P. H., and L. Hotine, Oil Engines in B.B.C. Stations, (471)
Smith, Thomas, and Sons (Rodley), Ltd., Improved "Two Ten" Excavator, 598
Snell, Sir John, Obituary, 71
Soag Machine Tools, Ltd., Vertical and Horizontal Milling Machines, 234
Souter, W. A., British Merchant Shipping, 607
South African Iron and Steel Industrial Corporation, G. A. Jenkin Appointed London Representative, 52; Reappointment of Dr. H. J. Van der Bijl, 292; Dismissal of Employees, 655; Steel Production, 711
South African Railways, Derailing Tests, 581, 592, (Leading Article, 593); Inquiry Wanted, 655
South African Torbanite Mining and Refining Co., Ltd., Year's Production, 546
South Durham Steel and Iron Co., Ltd., New Coking and By-products Plant at West Hartlepool, 86, 94, 113, 122
South Wales Aluminium Co., Ltd., New Factory in South Wales, (563)
South-West Midlands Electrical Advisory Joint Committee, 1937 Report, 137
Southampton Docks, Centenary, (387); Improvement Works, (645)
Southampton Flying Boat Base, 137, (733)
Southern Railway, Bognor Regis Electrified Extension, 7; Train Stoppage Caused by Lightning, 31; Trains for Waterloo and Bournemouth Services, (149); Mr. A. Raworth Appointed Chief Electrical Engineer, 351; Tunbridge Wells Electrification, (363); Sale of Railway Stations, (415); Collision at Herne Hill, (443); Folkestone Harbour Improvements, (471); Waterloo and City Railway, (533) (645)
Southern Van Ryn Reef Gold Mining Co., Rich New Iron Field in Transvaal, 426
Southwell, R. V., The Changing Outlook of Engineering Science, 194; (Leading Article, 230)
Spencer (Melksham), Ltd., Coal Handling Plant at Clarence Dock Power Station, 460, 472; Forty-foot Sack Stackers, 625
Sproule, J. S., and W. B. Murray, World Gliding Record, (67)
Stein and Atkinson, Ltd., Oil-fired Rotary Melting Furnace, 42, 52
Stephen, A. M., Elected President, Shipbuilding Employers' Federation, 551
Stephen, Alexander, and Sons, Ltd., P. & O. Liner "Canton," 379, 416, 419
Sternol, Ltd., "Sternopal" Soluble Cutting Fluid, 89
Stettiner Vulcan Werft, German Shipbuilding Yard to Re-open, (201)
Stewart, Major-General J. W., Obituary, 367
Stewarts and Lloyds, Ltd., Pipe Joints, Model of Corby Works, and "Camac" Tap, 386
Stock, R. V. W., Appointed Chief Engineer, Thames Conservancy, 551
Stockholm Port Improvements, (309)
Stirk, John, and Sons, Ltd., "Hilopianes," 691
Stone, J., and Co., Ltd., Carbon Pile Voltage Regulators, 233; Variable-speed Gear, 635
Stuart Turner, Ltd., 3 B.H.P. Oil Engine Generator Set, 466
Suez Canal Traffic, (250), (645)
Sulzer Brothers, 12,500 S.H.P. Oil Engines for Motorship "Oranje," 361
Swan, Hunter and Wigham Richardson, Ltd., "Dominion Monarch," Shaw Savill Motorship, (121), 137; Motorship "Regent Tiger," 287; Mr. C. S. Swan Appointed Chairman, (335); Turkish Merchant Ships Ordered, (645); British India Twin-screw Steamer "Amra," 666 (*Supplement, December 16th*, 1938)
Swedish Hydro-electric Projects, Expenditure, (362)
Swift, H. W., The Functions of Cutting Fluids, 441; (Leading Article, 446)
Swinburne, Sir James, Invention, 589
Swiss Federal Railways, Report on, (314)
Switchgear and Cowans, Ltd., High Rupturing Capacity Switch and Fuse Unit, 397
Sykes, C., and H. Evans, Specific Heat/Temperature Curves, 505
Szlumper, G. S., Co-ordination of Transport, 405; Transport, 543

T

TABLE Bay Power Station, South Africa, 656
Tangyes, Ltd., Heating Stove, 682
Taylor, G. I., The Determination of Drag by the Pitot Traverse Method, 120
Taylor, J., and J. B. B. Owen, An Approximate Method of Stressing the Struts of a Stiff-jointed Framework, 145
Team Valley Trading Estate, 719
Tener, R. S., and E. S. Dibble, Voltage Regulators of Ungoverned Generating Sets, 154
Tennent, R. B., Ltd., "Adamite" Metal Rolls, 115
Thames Conservancy Board, Retirement of Mr. G. J. Griffiths, 551
Thames Embankment Scheme, 551
Thermotank, Ltd., Air Distributors and Ventilating Fans, 385
Thomas, G. J., and L. E. Price, The Tarnishing of Silver and Silver Alloys and its Prevention, and Oxidation Resistance in Copper Alloys, 536
Thomas, Richard, and Co., Ltd., Ebbw Vale Scheme, 31
Thomas and Son (Worcester), Ltd., Pumping Head, 125
Thomas, T. S. E., and R. V. Wheeler, Inflammation of Coal Dust Clouds, (645)
Thomas, W. N., Freezing of Building Materials, (13)
Thompson, John, Water Tube Boilers, Ltd., Fusion Welded Boiler Drums, "Beta" and "Lamont" Boiler Models, 469; Lamont Boiler Installation at Works of G. and J. Weir, Ltd., 367, 395; Test Figures, 626; (Letter, 424)
Thornton, A. G., Ltd., A Trigonometrical Set Square, 343
Thornton, B. W., The Lamont Boiler, 424
Thornycroft, John I., Ltd., Oil-engined Picket Boat for the Royal Navy, 129; New Motor Torpedo Boats, 189; Anglo-Iranian Twin-screw Launch, "R J/3" Oil Engines, 500; H.M.S. "Erebus," Refitting, (711)
Thousand Islands Bridge, St. Lawrence River, (281), 310, 315
Tir John Power Station Extensions, Swansea, (645)
Todd, F. H., Vibration in Ships, 307
Todd, F. H., and J. Edward, Steam Drifters Redesigned, 519
Tookey, W. A., Dugald Clerk and the Gas Engine, 663
Toward, T., and Co. (1932), Ltd., Pulverised Fuel Firing Equipment, 249
Tower Bridge Repairs, 165
Townend, Dr. D. T. A., Appointed Livesey Professor, Leeds University, (13)
Townend, H. C. H., Visual and Photographic Methods of Studying Boundary Layer Flow, 70
Townsend, Sir Reginald, Obituary, 505
Tree, R. H., Obituary, 284
Treglown, Ltd., Clarke Troller Outboard Motor, 499
Trevithick, R. E., Forced Circulation Boilers, 656
Tullis, D. and J., Ltd., "Imperial" Pneumatic Laundry Press, 305
Tyn Plywood Works, (13)

U

ULSTER Aircraft Works Extension, 189
Union Pacific Railway, Turbo-electric Locomotive, 400
United Insulator Co., Ltd., High-frequency Materials and Components, 570
United Shipyards, Inc., Sea-going Sewage Sludge Vessels, 586
Usinger, C., and A. Garras, Bog Blasting, 140
Uttoxeter Sewage Disposal Works, 459
Uxbridge Station, L.P.T.B., 607

V

VAN DER BIJL, H. J., Reappointed as Head of "Iscor," 292
van Eendenburg, D. C. F., Obituary, (374)
Vanduzer, R. M., and C. F. Hirshfeld, Heat-generated Energy, 636
Variable Speed Gear, Ltd., "V S G" Hydraulic Gear, 664
Vattenbygnadsbyran, The Krangede Hydro-electric Power Scheme, 193, 202, 218, 244
Vauxhall Motors, Ltd., Speedy Delivery of Motor Car Fleet, (415); "Six-phase" Carburation System and Front Springing Unit, 464
Velox Boiler Fitted to 4–6–0 Four-cylinder Compound Locomotive, (253)
Vickers-Armstrongs, Ltd., Electrification of Hydraulic Machinery at Sharpness Docks, 344; Launch of H.M. Submarine "Thistle," (471); New Aircraft Factory, (471)

Victor Oil Engines (Coventry), Ltd., Four-cylinder Oil Engine, and High-pressure Rotary Pump, 499
Victoria Falls and Transvaal Power Co., Power Demand for the Rand, (309)
Vincent, R., Why Foreign Trade ? 699
"Volman" High-speed All-geared Lathes, Selson Machine Tool Co., Ltd., 507
Vosper, Ltd., New Motor Torpedo Boats, 189; 950 B.H.P. Isotta-Fraschini Marine Engine, 498
Vulcan Foundry, Ltd., Locomotives for South America, (563), (617)

W

WADDELL and Hardesty, Marine Parkway Bridge, New York, 406, 432, 444
Wadkin and Co., Ltd., Woodworking Machinery with Individual Electric Driving, 552
Walker, H., Gear Tooth Deflection and Profile Modification, 409, 434; (Letters, 500)
Walker, J. A., The First Oil Engine, 316
Wall, T. F., Control of Magnetic Quality by Surface Treatment, 474
Wallis and Steevens, Ltd., "H" Pattern Oil Engine Driven Roller, 98
Wallwork, H., and Co., Ltd., Infinitely Variable Speed Gear, 635
Ward, T. W., Ltd., "Triumph" All-geared Lathe, 386; "Keetona" Guillotine Shearing Machine, and Portable Pumping Set, 387; Sixty Years' Service, 1878–1938, (658)
Ward, W. A., Obituary, (574)
Ward's Island Sewage Works, New York, 555; Sea-going Sludge Vessels, 586
Warren, A. G., Control of Magnetic Quality by Surface Treatment, 731
"Warwick Castle," Union Castle Liner, Repowering, Harland and Wolff, Ltd., 379
Waterloo Bridge, Peter Lind and Co., Ltd., 222, 228, 669, 674
Waterloo and City Railway, (533), (645)
Waterloo Station, L.P.T.B., Collision, Inquiry Report, 36
Watson, Laidlaw and Co., Ltd., "Autolift" Hydro-extractors, 273; Centrifugal Machines for Sugar Factory, 355
Weber, F., Boiler Construction in Germany, (562)
Wedgwood, Josiah, and Sons, Ltd., New Factory at Barlaston, (227) 297
Weir, G. and J., Ltd., La Mont Boiler Installation, John Thompson Water Tube Boilers, Ltd., 367, 395; Test Figures, 626; (Letter, 424); New Social Centre at Cathcart, 558, 564
Weir, Lord, Presidential Address, International Engineering Congress, 16
Weller, R., Photo-elasticity in Three Dimensions, (742)
Werking, L. C., Porous Carbon, (501)
West, A. G. D., The Future of Television, (501)
West, Sir Frederick, Gas Engineering as a Career, 297
Western Union Telegraph Co., New Cable-laying Developments, 165
Westinghouse Brake and Signal Co., Ltd., Resignalling of Paragon Station, Hull, L.N.E.R., 49
Westinghouse Electric and Manufacturing Co., Generators for Grand Coulee Project, (363)
Westinghouse Electrical International Co., Retail Business in South Africa, 184
Wheeler, R.V., Melchett Medal Award, (67) (442)
Wheeler, R. V., and T. S. E. Thomas, Inflammation of Coal Dust Clouds, (645)
White, J. Samuel, and Co., Ltd., Launch of H.M. Destroyer "Jersey," (363)
White, S. D., Fifty Years' Service with G.E.C., Ltd., (13)
Whitehouse, Sir George, Obituary, (591)
Whitelaw, William, Retirement from L.N.E.R., (152)
Whiteley, F., Involute Gear Modification, 523
Wickman, A. C., Ltd., New Expansion Reamers, 208
Widdop, H., and Co., Ltd., Six-cylinder 90 B.H.P. Oil Engine, and 5 H.P. "S W" Type Stationary Engine, 466
Wilcox, D. M., The Calculation of Train Running Times, 277
Wilkinson, G. B., Obituary, (253)
Williams, D., The Use of the Principle of Minimum Potential Energy in Problems of Static Equilibrium, 624
Williams, D., and J. Hanson, Gust Loads on Tails and Wings, 120
Williams, Sir E. Owen, Boots New Factory at Beeston, Notts, 618, 621
Williams, G., Cylinder Wear, (591)
Wilson Boilermakers, Ltd., Boiler for Palace of Engineering, Glasgow Exhibition, 440
Wilson, C., Fifty Years' Service with G.E.C., Ltd., (13)
Wilson, Sir D. R., Factory Inspector's Report 165
Wilson, W. G., The Control of Diesel Railcars, 594, 602
Wilson, W. M., and F. P. Thomas, Fatigue Tests of Riveted Joints, (363)
Winter, J. B., "Silver Rocket" Model at I. Mech. E., (93)
Wolverhampton Airport, 1

Y

YARROW and Co., Ltd., "Queen Elizabeth" Boilers, 358; Launch of H.M. Destroyer "Jupiter," (471); Machinery for Yugoslav Warship, (563)
Yorkshire Electric Power Co., Proposed New Power Station, (533)
Yorkshire Gas Grid, 689, 719, (733)
Young, A. P., Work and Leisure in Industry, 83
Young, H. J., "Loded" Cast Irons, (673)
Young, William, Memorial Lecture, Gas Engineering as a Career, Sir F. West, 297
Youngstown Sheet and Tube Co., American Seamless Steel Pipe Works, 198

Z

ZEISS, Carl, Co., Improved Toolmakers' Microscope, 477
Zinc Development Association, Ltd., Zinc Roll Cap Roofing, (562)
Zuyder Zee Dyke Damage, (443)

Subjects

A

ACETYLENE Congress, International, 1939, (22)
"Adamite" Metal Rolls, R. B. Tennent, Ltd., 115
Adhesive, New, for Plywood, Bakelite, Ltd., (41)
"Admiralty" Pattern Oil and Bearing Testing Machine, Sir W. H. Bailey and Co., Ltd., 209

AERONAUTICS:

Accidents:
American Flying Boat "Hawaii Clipper" Lost, (149)
Australian National Air Liner Crash at Mount Dandenong, (471)
"Cygnus" Flying Boat Accident, Report on, (253)
Edmonton, North London, R.A.F. Machine Crash, (281), (363)
Empire Flying Boat "Calpurnia" Crash on Lake Habbaniyeh, (617)
German Air Liner Crash, "Zu. 90," at Bathurst, (617)
German "Condor" Accident in Manilla Bay, (645)

Accelerations, Measurements of, at Different Parts of a Boat Seaplane during Take-off and Landing, G. C. Abel, 624
Air Council, Reduced to Seven, (175)
Air Ministry Appointments (Licensing Authority), 1
Air Ministry, Purchase of Heathshall Works, Dumfries, (563)
Air Raid Precautions Institute, Inauguration, (443)
Air Raid Protection, Engineering Aspects of, H. Chatley and H. Gutteridge, 529
Air Raid Shelters, 297
Air Raids, Engineers and (Inst. Structural Engineers' Report), 503; (Letter, 538)
Air Transport, G. S. Szlumper, 543
Aircraft Carriers "G.U.N.S.," 450,
Aircraft Defence Programme, (415)
Altimeter, An Aircraft, United Airlines, (443)
Altimeter, Radio Echo, Bell Telephone Laboratories, (617)
Altitude Record by Caproni Machine, M. Pezzi, (471)
Apprentices, Royal Air Force, School at Cosford, Glos, (41)
Australian Aeronautical Research, (227)
Australian Government Purchases American War Aircraft, (533)
Balloon Barrage, London, 269
Belfast Aircraft Factory Extension, (201)
British Aircraft Manufacturing Co. Acquired by General Aircraft, Ltd., (121)
British Airways' New Fleet, (253)
Busk Studentship in Aeronautics, (67)
Canadian Air Lines, (253)
Canadian Air Navigation, Passenger and Express Air Services, Ltd., (701)
Canadian Aircraft for Britain, (121)
Canadian Civil Aviation, (701)
Civil Air Guard Commissioners, Appointment of, 217; First Meeting, (261)
Civil Aircraft, Registered, (227)
Civil Aviation, British Statistics, (443)
Civil Aviation Report, 379
Civil Aviation Subsidies, 663
Eckener, Dr., Awarded Gold Medal, Royal Aeronautical Society, (443)
Empire Flying Boats' Night Take-off, (363)
Factories, New Government Aircraft, 83
Flare Path for Empire Flying Boats, 351

AERONAUTICS (*continued*):
Flying, The Control of, (Committee), 489, (501)
French Air Force Display, (67)
French North Atlantic Flight ("Lieutenant-de-Voisseau-Paris"), 295
General Aircraft, Ltd., Acquires British Aircraft Manufacturing Co., (121)
German Transatlantic Flight ("Brandenburg"), (201)
Glider Altitude Record, W. Drechsel, (175)
Glider Flight, A Record, T. Kahlbacher, (309)
Gliding Record, World, (67)
Gordon Bennett Balloon Race, (335)
Gust Loads on Tails and Wings, D. Williams and J. Hanson, 120
Halton Camp R.A.F. School Removal, (121)
Hastings-Le Touquet Air Service, Proposed, (733)
Heathshall Works, Dumfries, Proposed Purchase by Air Ministry, (563)
Hotel, Floating, for Imperial Airways' Passengers at Mozambique, (733)
Hughes, Howard, World Flight, (67), (93); High-speed Flight in America, (227)
Ice Formation on Aircraft, "Kilfrost" for Prevention, (511)
Imperial Airways, Ltd., Annual Meeting and Report, (533), 551; New Services, (533); Mr. W. L. Runciman to Join, (617)
Isle of Man Air Services, (501)
Ismailia–Darwin, Non-stop Air Record, Vickers "Wellesley" Bombers, (533)
"Kilfrost" for Prevention of Ice Formation on Aircraft, (511)
King's Cup Air Race Won by A. Henshaw in Percival "Mew Gull," (41)
Landing Flaps, Review of Some Full-scale Tests on, J. E. Serby, 120
London–Cardiff Air Race, (309)
Long-distance Non-stop Air Record, Vickers "Wellesley" Bombers, from Ismailia to Darwin, (533)
Manchester Aircraft Factory, New, A. V. Roe and Co., Ltd., 189
Merger of Air Services, (149)
Naval Air Reserve, Formation of, (591)
New York–Paris Record Flight, Howard Hughes, (67)
New Zealand Air Mail Service, (272)
North Atlantic Air Mail Service, (563)
Norwegian Air Control, (733)
Palestine Air Line, Subsidiary of Imperial Airways, (389)
Paris Aircraft Show, (501), 648
Paris–Hong Kong Air Service, (227)
Portugal, New British Airways' Service, (415)
Railway Air Services, Ltd., Merger, (149)
Roe, A. V., and Co., Ltd., New Factory at Greengate, Chadderton, 189, (281)
Royal Air Force, Civilian Wireless Reserve, 269
Royal Air Force, Coastal Area Headquarters, Transfer of, (563)
Royal Air Force Development Flight ("Wellesley" Aircraft), 57
Royal Air Force, Enlistment of Ex-Airmen, (363)
Royal Air Force Expansion, 1, (563), (701)
Royal Air Force, Long-distance Flight to Australia, (471)
Royal Air Force School for Apprentices at Cosford, Glos., (41)
Scholarships, British Aircraft Industry, (13)
Scottish Air Mail Service, (335), (389)
Seaplanes and the Atlantic Crossing, 123
Signpost, An Aerial, at Karachi, (67)

AERONAUTICS (*continued*):
South Africa, Aerial Survey of East Coast, 545
South American Air Service Survey, (13)
Speed Record Attempt, R.A.F., with Supermarine "Spitfire," (563)
Stockholm–Moscow Air Service, (733)
Survey Flights, Transatlantic, (415)
Switzerland, New Imperial Airways Service to, (617)
Transatlantic Flying Programme, (121)
Trans-Canada Air Service, (443), (591)
Transport Licences, British Air, (701)
United States Civil Aeronautics Air Board, (13)
Vibration in Ships and Aircraft (B.A. Discussion), 307
Western Air Industry, Sir K. Wood's Visit, 243
Westland Aircraft, Ltd., Arrangement with John Brown and Co., Ltd., 297
Wind Tunnel Tests and Charts of Airscrew at Negative Thrust, C. H. N. Lock, H. Bateman, and H. L. Nixon, 145

Aerodromes:
Airport Design, R. F. Lloyd Jones, (443)
Australian Air Force Station at Darwin, (102)
Birmingham Land Purchases by Air Ministry, (591)
Cambridge Civil Aerodrome, (363)
Gravelly Point Airport, U.S.A., (701)
Italian Aerodromes, (253)
Italian Airport at Lake Bracciano, near Rome, (93)
Langstone Harbour Airport, (673)
Lisbon Aerodrome, (149)
Manchester Airport, Official Opening, 1
Newfoundland Transatlantic Airport, (418)
Nuneaton Air Base, (201)
Pacific Islands as Joint Air Junctions, (201)
Ringway Airport, Access to, (563)
Royal Air Force Station at St. Athan, Glamorgan, (149)
Southampton Flying Boat Base, 137, (733)
Toronto Airports, (227)
Washington Aerodrome, U.S.A., (617)
Wold-Chamberlain Airport, Minneapolis, Snow Handling at, (501)
Wolverhampton Airport, Official Opening, 1

Aero-engines and Aircraft:
Aircraft Construction, New, 137
"Airspeed Envoy," Type A.S.6.G., Full-scale Tests of the, J. E. Serby, R. H. Francis, and P. Fortescue, 624
Airship, New American, (563)
"Albatross" Overload Aeroplane Test, de Havilland Co., Ltd., 243
American Aircraft, British Orders for, (443)
Blenheim Bomber, with "Mercury VIII" Engines, Bristol Aeroplane Co., Ltd., (501)
Boundary Layer Flow, Visual and Photographic Methods of Studying, H. C. H. Townend, 70
"Bristol Hercules" Engines for 31-Ton Transport Air Ministry Liners, (471)
British Airways Lockheed 14-Super Electric Aircraft, Test Flight, (335)
"Cassiopeia," Imperial Airways Flying Boat Delayed, (67)
"Champion," Long-range Flying Boat for Imperial Airways, Short Brothers and Co., Ltd., (501)
Crewe Aero-engine Factory, The New, (93)
de Havilland Plane Factory in South Africa Proposed, 545

Aero-engines and Aircraft (*continued*):
"Ensign" Air Liners, Demonstration Flight, (443)
Fairey Air Liner Ordered by Air Ministry, (591)
Flying Boats, New Long-range, for Imperial Airways, Short Brothers and Co., Ltd., (501)
Flying Fury, 203
Focke "Wulf 200 Condor," German Air Liner, (67)
German Seaplane "Nordstern" Record Flight, (309)
"Graf Zeppelin L.Z. 130," New German Airship, (292), 325, (335)
Heinkel "He. 116" Four-engined Air Liners for Manchuria, (101)
Junkers Aeroplane Engine Replacement, (253)
Lancashire Aircraft Factories, (501), (563)
Lockheed Aircraft for Royal Air Force, (67)
Lockheed Bombers Purchased by Australian Government, (533)
Lufthansa "Condor" Machine, Proposed Long Flight, (175)
Mayo Composite Aircraft, (93), 123, (175), (201), (335), (389), (415), (471), (617)
"Mercury" in Empire Mail Service, (617)
"Mercury" Long-distance Flight, (389), (415), (471)
"Queen Bee" Wireless-controlled Aeroplanes on H.M.S. "Argus," (175)
Rolls-Royce Works Extensions, (673)
Royal Air Force, Lockheed Aircraft Ordered, (67)
S.A.B.E.N.A. New Aircraft, (93)
Seaplane, German Military Twin-engined, Blohm and Voss, (415)
Seaplane, New "Seeadler (Do. 26)," for North Atlantic Mail Service, (281)
Ulster Aircraft Works Extensions, 189
Vickers-Armstrongs, Ltd., New Aircraft Factory, (471)
"Wellesley" Aircraft Development Flight, 57, (471)

Agricultural Engineer, The British, P. Johnson, 689
Air Compressors—*see* Compressors
Air Distributors, Thermotank, Ltd., 385
Air Heating Unit, Keith Blackman, Ltd., 625
Air Meters, Viscous Flow, Ricardo and Co., Engineers (1927), Ltd., 743
Air Mixture, A New, for Diving, (201)
Air Raid Protection, Engineering Aspects of, H. Chatley and H. Gutteridge, 529
Air, Theoretical Discharge of, from Ports in a Duct, W. S. Brown, 587, 610
Air and Water—*Weekly*
Alberta, Natural Gas Conservation in, (389)
Alkali and Other Works, Inspector's Report (Industrial Smoke), 31
Alloying of Tin and Bismuth, A. C. Davidson, (175)
Alloys, Copper-Aluminium, M. L. V. Gayler, 536
Alloys, Magnetic, and X-ray Structure (B.A. Discussion), 330
Altimeter, An Aircraft, United Airlines, (443)
Aluminium Alloy Lorry Body, Northern Aluminium Co., Ltd., 156
Aluminium Castings, Sealing Porous, E. E. Hall, (389)
Aluminium Consumption in the United Kingdom, (121)
Aluminium Factory, New, in South Wales, (563)

Aluminium from Power Station Waste, (175)
Aluminium Production in India, (149)
Aluminium, Production of, Aluminium Union Ltd., 305
Aluminium Wire, Fine, (13)
Aluminium, World Production Figures, (309)

AMERICAN ENGINEERING NEWS:
Asphalt Mattress Bank Revetment, 130
Bartlett Dam, Arizona, Multiple-arch Concrete, 400
Blast-furnaces, Pressure Operation of, 160
Brick Road Paving, Reinforced, 742
Bridge, Long Continuous Girder (Potomac River, Washington), 130
Chicago, Elevated Street for, 160
Chicago Lift Bridges, 320
Chicago Underground Railway, 742
Coal Drying in America, 160
Cold Roll Forming of Strip Steel, 160
Control Instruments for Steel Mills, 346
Dyke and Bank Revetment, Mississippi River, 130, 400
Earth Dam Construction, 160
Embrittlement of Boiler Steel, 400
Energy, Future Generation of, 454
Flood Control by Government, 454
Fort Peck Earth Dam, Slide in the, 624
Foundry Research and Practice, 400
Highway Planning Surveys, 572
Highway Tunnels, American, 624
Iron and Steel Developments, 571
Machine Tool Emergencies, 362
Machine Tools, Electric, 160
Marine Developments, 714
Mississippi River, Asphalt Mattress Bank Revetment, 130, 400
Mississippi River, Straightening, 742
Motorships, American, 160
New York World's Fair, 400
Oil Engines for Drainage Pumps, 160
Oil Well Drilling, Notable, in California, 400
Permanent Way for Fast Trains, 572
Petrol-electric Buses, Philadelphia, 320
Phosphate Situation, The American, 454
Potomac River, Washington, Long Continuous Girder Bridge, 130
Power Stations, Oil-engined, 400
Public Relations Policies, 572
Railway Station Design, 130
Rolling Stock, American Railway, 362
San Francisco World's Fair, 624
Shore and Beach Protection, 572
Siphons Regulating Water Level, 624
Specifications *versus* Contract, 160
Steamers, Fast Coasting, 571
Steel Mills, Control Instruments for, 346
Steel Research Laboratory, Jones and Laughlin, 572
Street, Elevated, for Chicago, 160
Tank Steamers, American, 454
Textile Wastes, Treatment of, 714
Timber Construction, 346
Turbo-electric Locomotive, Union Pacific Railroad, 400

American Garbage Disposal Developments, (168)
American Public Works Grants, (645)
American Seamless Steel Pipe Works, Youngstown Sheet and Tube Co., 198
American Shore and Beach Protection, 572
American Transport, (733)
Anchor, Aluminium Bronze, T. M. Birkett and Sons, Ltd., 470
Anchor, Earth, Kennedy and Kempe, Ltd., 99
Anglo-German Industrial Discussions, 719
Antimony s Effect on Strength of Tin, D. Hanson and W. T. Pell-Walpole, (533)
Apprentices, Chinese, in Britain, 574
Apprenticeship in France, 377
Arbitration Complications, French, 187
Archimedes, W. J. E. Binnie, 494; (Leading Article, 535)
Armament Case, A French Nationalised, 163
Armament Production, French, 517
Armaments, Economy in the Production of, 735
Armaments and Steel Production in France, 429
Army, Science in the, Exhibition at South Kensington, 595
Artisanship, Ideals of, 749
Asbestos, Manganese and, Discovered in New Zealand, (443)
Asphalt Mattress Bank Revetment, Mississippi River, 130
Assiut Barrage Remodelling, Coode, Wilson, Mitchell and Vaughan-Lee, 254, 258
Associated Equipment Co., Ltd., Works at Southall, 678, 697, 702, 726

ASSOCIATIONS, INSTITUTIONS & SOCIETIES:
ASSOCIATION, AMERICAN FOUNDRYMEN'S:
Foundry Research and Practice, 400

ASSOCIATION, AMERICAN IRON AND STEEL:
Control Instruments for Steel Mills, 346

ASSOCIATION, AMERICAN RAILWAY ENGINEERING:
Shatter Cracks in Rails, (175)

ASSOCIATION, BRITISH, FOR THE ADVANCEMENT OF SCIENCE:
Future Meetings, (227)
Social Relations of Science Committee, 243, (652)
Cambridge Meeting, 194, 198, 204, 231, 237, 246, 275, 307, 319, 329; (Leading Articles, 204, 229, 230)
Contributions of Engineering to Physics, M. L. E. Oliphant, 319
Science and Warfare, Lord Rayleigh, Presidential Address, 204; (Leading Article, 204)
Section A.
Logic and Probability in Physics, C. G. Darwin, 237; (Leading Article, 229)
Magnetic Alloys and X-ray Structure, 330
Section G.
The Changing Outlook, of Engineering Science, R. V. Southwell (Presidential Address), 194; (Leading Article, 230)
Braking of Railway Trains, C. H. Edgecombe, 277

ASSOCIATIONS, INSTITUTIONS & SOCIETIES (*continued*):
ASSOCIATION, BRITISH, FOR THE ADVANCEMENT OF SCIENCE (*continued*):
Section G (*continued*)
Engineering Instruments, C. C. Mason, 329
Engineering Public Relations Committee, 231
Magnetic Measurements with special reference to Incremental Conditions, 307
Relaxation Applied to Calculate the Flow of a Compressible Fluid, J. R. Green, 231
Relaxation Method for the Solution of Poisson's Equation, D. G. Christopherson, 231
Road Development in Great Britain, F. C. Cook, 275
Scale Models in Engineering, The Use of, R. W. Allen, 246; (Leading Article, 473)
Settlement of Structures, A. W. Skempton, 329
Suppression of Radio Interference Caused by Trolleybuses, J. E. M. Coombes, 232
Torque Converter for Motor Cars, F. C. Lea, 276
Train Running Times, The Calculation of, D. M. Wilcox, 277
Transients in Transformers, F. B. Greatrex, 231
Vibration in Ships and Aircraft, 307
Vibrometer, A Moving-coil, G. O. Eccles, 232
Welded Pipes, Stresses in, S. J. Palmer, 329

ASSOCIATION, BRITISH CAST IRON RESEARCH:
Annual Meeting, 663, (701)

ASSOCIATION, BRITISH ELECTRICAL AND ALLIED MANUFACTURERS:
Annual Dinner, (589)
Electrical Industry and the Anglo-American Trade Agreement, 689

ASSOCIATION, BRITISH ENGINEERS:
Engineering Industrial Organisation, Lord Dudley Gordon, 654
Gordon, Lord Dudley, Re-elected President, (443)

ASSOCIATION, BRITISH LAUNDERERS' RESEARCH:
Experimental Laundry, 633

ASSOCIATION, BRITISH NON-FERROUS METALS RESEARCH:
Nickel Silver, T. F. Pearson, (13), 36

ASSOCIATION, BRITISH OIL BURNER MANUFACTURERS':
Annual Meeting, 12

ASSOCIATION, BRITISH ROAD TAR:
Annual Meeting, 519

ASSOCIATION, COPPER DEVELOPMENT:
Driving Earth Electrodes, 422

ASSOCIATION, DIESEL ENGINE USERS:
Oil Engines in B.B.C. Stations, L. Hotine and P. H. Smith, (471)
Presidential Address, T. Hornbuckle, 21

ASSOCIATION, INCORPORATED MUNICIPAL ELECTRICAL:
Centralised Automatic Control of Street Lighting, E. E. Hoadley and H. P. Baker, 99
1939 Convention, (367), (471)

ASSOCIATION, NATIONAL "SAFETY FIRST":
Scholarship, (561)

ASSOCIATION, PAPERMAKERS':
The Grid and the Papermaker, L. N. Burt, 651; (Letter, 672)

ASSOCIATION, POWER TRANSMISSION:
Winding up, (617)

ASSOCIATION, REINFORCED CONCRETE:
Revised Constitution, (343)

ASSOCIATION OF AMERICAN RAILROADS:
Locomotive and Rolling Stock Convention, 211
Locomotive Tests, (533)

ASSOCIATION OF ENGINEERS, CALCUTTA:
Concepts and Language of Electrical Engineering, G. W. O. Howe, 262; (Leading Article, 255)

ASSOCIATION OF MINING ELECTRICAL ENGINEERS:
Jointing Box Compound, W. C. Barry, (563)
S. Wales Branch.
Electricity in Mines, J. Jones, (451)

ASSOCIATION OF PUBLIC LIGHTING ENGINEERS:
Street Lighting, J. F. Colquhoun, 290

COMMITTEE, ENGINEERING PUBLIC RELATIONS:
Public Health Exhibit, 542
The Engineer and the Community, Course of Lectures, 343

CONGRESS, INTERNATIONAL ENGINEERING:
Attendance Figures, (563)
Presidential Address, Lord Weir, 16
Report of Sessions, 16
Building of Ships: A British Survey, Sir J. Lithgow, 4
Superimposing in Power Stations, G. A. Orrok, 77
Technical and Economic Developments in Electrical Engineering, S. B. Donkin 50
Transactions, (546)

ASSOCIATIONS, INSTITUTIONS & SOCIETIES (*continued*):
ENGINEERS' GERMAN CIRCLE:
Boiler Construction in Germany, F. Weber, (562)
Meetings at Various Institutions, (598)
Non-destructive Testing in Germany, R. Berthold, (617)

INSTITUTE, AIR RAID PRECAUTIONS:
Inauguration, (443)

INSTITUTE, AMERICAN IRON AND STEEL:
Blast-furnaces in the U.S.A., (591)
Steel Statistics, (309)

INSTITUTE, BRITISH HOROLOGICAL:
Testing of Watches, (201)

INSTITUTE, FRANKLIN:
Influence of Astronomy on Science, F. R. Moulton, 453

INSTITUTE, IRON AND STEEL:
American Autumn Meeting, 154, (343)
Cardiff Autumn Meeting, Programme, 504
London Autumn Meeting, 424, 504, 513, 525
Papers.
American Electric Furnace Practice, W. M. Farnsworth and E. R. Johnson, 504
Electric Furnaces in European Steel Works, D. F. Campbell, 504
Specific Heat/Temperature Curves, C. Sykes and H. Evans, 505
Steel Casting Research, 525

INSTITUTE, WEST OF SCOTLAND IRON AND STEEL:
Continuous Rolling of Sheet and Tinplate, J. Malborn, (224)

INSTITUTE OF BRITISH FOUNDRYMEN:
Modern Manufacture of Machine Tool Castings, J. Blakiston, 102 (Letter, 119)
Randupson Process of Cement Moulding, F. W. Rowe, 211
Relief of Internal Stress in Castings, L. E. Benson and H. Allison, 23

INSTITUTE OF FUEL:
Dinner, (442)
Gas Producer, The Modern Portable, H. Goldman and N. C. Jones, 712, 740; (Leading Article, 703)
Greenly, Lieut.-Col. J. H. M., Elected President, (227)
Melchett Medal Awarded to Professor R. V. Wheeler, (67), (442)

INSTITUTE OF INDUSTRIAL PSYCHOLOGY, NATIONAL:
Special Course for Employment Managers, 500

INSTITUTE OF MARINE ENGINEERS:
International Conference of Naval Architects and Marine Engineers, 11
"Loded" Cast Irons, H. J. Young, (673)
Noise Reduction in Ships, R. S. Robinson, 568
State and the Marine Engineer, Sir E. Julian Foley, Presidential Address, 399

INSTITUTE OF METALS:
American Autumn Meeting, (154), (343)
Autumn Meeting in London, 454, 536
Papers.
Copper-Aluminium Alloys, M. L. V. Gayler, 536
Oxidation Resistance in Copper Alloys, L. E. Price and G. J. Thomas, 536
Tarnishing of Silver and Silver Alloys and its Prevention, L. E. Price and G. J. Thomas, 536

INSTITUTE OF MINING ENGINEERS, MIDLAND:
Inflammation of Coal Dust Clouds, T. S. E. Thomas and R. V. Wheeler, (645)

INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, AMERICAN:
Perspective of Geophysics, Sherwin F. Kelly, 288
Pressure Operation of Blast-furnaces, 160

INSTITUTE OF PETROLEUM:
Annual Dinner, 663
Cutting Fluids, The Functions of, H. W. Swift, 441; (Leading Article, 446)
Cutting Fluids and the Machine Tool, A. H. Lloyd and H. H. Beeny, 420
Oil Drilling in Great Britain, G. W. Lepper, 519

INSTITUTE OF PLASTICS:
Invention, Sir J. Swinburne, 589

INSTITUTE OF TRANSPORT:
Acceleration of Railway Services, S. H. Fisher, 706
Awards, (389)
Co-ordination of Transport, G. S. Szlumper, Presidential Address, 405, 543

INSTITUTE OF WELDING:
Annual Dinner, (501)
Welding Research, Sir William Larke, 431

INSTITUTION OF AUTOMOBILE ENGINEERS:
Automobile Research, New Items, (701)
Automobile Research Report, 351
Banquet and Dance, (433)
Kidner, Mr. P. C., Elected President, (357)
Presidential Address, 379

INSTITUTION OF BRITISH AGRICULTURAL ENGINEERS:
Formation, 579
The Past, Present, and Future of the British Agricultural Engineer, P. Johnson, 689

ASSOCIATIONS, INSTITUTIONS & SOCIETIES (*continued*):
INSTITUTION OF CIVIL ENGINEERS:
Benevolent Fund Housing Estate, 47
Breathing Apparatus for Use in Sewers, (501)
Canadian Wharf Structures of Steel Sheet Piling, R. F. Legget, 270, 301
Clerk, Dugald, and the Gas Engine, W. A. Tookey, 663
Earthing Electrical Installations to Water Pipes and Mains, 210
London Docks, R. R. Liddell, (645)
Presidential Address, W. J. E. Binnie, 493; (Leading Article, 535)
Water Pipes as Earths, Regulations, (121)
Manchester Association.
Airport Design, R. F. Lloyd Jones, (443)
Social and International Problems and the Civil Engineer, R. D. Brown, 424; (Leading Article, 417)

INSTITUTION OF ELECTRICAL ENGINEERS:
Earthing Electrical Installations to Water Pipes and Mains, 210
Electric Heating for Ships, H. C. MacEwan, (591)
Library Facilities, (132)
Non-Destructive Testing, Discussion on, 451, 620, 626
Personnel in Industry, A. P. M. Fleming, 467; (Leading Article, 473)
Visit to B.T.H. Co., Ltd., Rugby, 75
Wooden Poles in Transmission Line Service, S. R. Siviour, (617)
North Wales Centre.
Annual Dinner, 579

INSTITUTION OF ENGINEERS, JUNIOR:
Bressey, Sir Charles H., Elected President, (12)
Railway Difficulties in Egypt, N. L. Ablett, (591)
Roads and Traffic, Sir C. Bressey, Presidential Address, 683; (Leading Article, 675)
Status of the Engineer, H. Chatley, 489

INSTITUTION OF ENGINEERS-IN-CHARGE:
Electric Lighting Practice, Recent Progress in, A. D. S. Atkinson, 77

INSTITUTION OF ENGINEERS AND SHIPBUILDERS, NORTH-EAST COAST:
Cairns, Major T. R., Elected President, (443)
Electric Propulsion of Ships, L. R. Horne, (733)
Forced Circulation Boilers, R. E. Trevithick, 656
Molecular Basis of the Strength of Materials, Sir W. Bragg (Andrew Laing Lecture), 572; (Leading Article, 565)
Neon Signs for Measured Mile Posts, Whitley Bay, 405
Shipbuilders, Shipowners and International Trade, T. Russell Cairns, Presidential Address, 483

INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND:
Engineers and World Peace, A. C. Gardner, Presidential Address, 480
Industrial Planning, The Problems of, H. Beaver, 511; (Leading Article, 503)
Steam Drifters Redesigned, F. H. Todd, 519

INSTITUTION OF GAS ENGINEERS:
Autumn Meeting, 529

INSTITUTION OF MECHANICAL ENGINEERS:
Annual Dinner, 459
Diesel Railcars, The Control of, W. G. Wilson, 594, 602
High-duty Cast Irons, Research Committee's Report, 695
Mowat, Brig.-General Magnus, Retirement, (645)
Parsons, Sir Charles, and Marine Propulsion, S. S. Cook (Memorial Lecture), 638
Presidential Address, David E. Roberts, 463; (Leading Article, 473)
"Silver Rocket" Locomotive Model Presented by Dr. J. B. Winter, (93)
Television, Sir Noel Ashbridge, 526
North-Western Branch.
Annual Dinner, 633

INSTITUTION OF MINING AND METALLURGY:
Sources of Waste Heat Losses in Fine Grinding, L. Andrews, 745

INSTITUTION OF NAVAL ARCHITECTS:
International Conference of Naval Architects and Marine Engineers, 11

INSTITUTION OF PRODUCTION ENGINEERS:
Annual Dinner, 459

INSTITUTION OF STRUCTURAL ENGINEERS:
Air Raid Precautions, Committee's Report, 503; (Letter, 538)
Plastics, C. D. Philippe, (645)

SOCIETY, ELECTROCHEMICAL, OF AMERICA:
Porous Carbon, L. C. Werking, (501)

SOCIETY, FARADAY:
Luminescence Discussion, (93)

SOCIETY, INDUSTRIAL WELFARE:
Annual Meeting, 579
Holiday Savings, (415)
The New Factories Act, R. R. Hyde, 297

SOCIETY, NEWCOMEN:
Ironfounding in England, Rhys Jenkins, 599

SOCIETY, PHYSICAL:
Craftsmanship and Draughtsmanship Competition, (309)

SOCIETY, ROYAL AERONAUTICAL:
Eckener, Dr., Awarded Gold Medal, (443)
New Offices, (533)

ASSOCIATIONS, INSTITUTIONS & SOCIETIES (*continued*):

SOCIETY, ROYAL STATISTICAL:
Production and Efficiency, A. L. Bowley, 658; (Leading Article, 647)

SOCIETY, SMOKE ABATEMENT:
Annual Conference, 633
"Britain's Burning Shame," (363)

SOCIETY, WHITWORTH:
Summer Meeting at Bath and Bristol, (67)

SOCIETY OF CHEMICAL INDUSTRY:
Perkin's Discoveries, H. Levinstein, (591), 615
Smoke Pollution in London, R. Lessing, 379
Trunk Roads in Britain, J. O. Willis, (335)

SOCIETY OF CIVIL ENGINEERS, AMERICAN:
Roads in the United States, (227)
"Zephyr" Oil-engined Trains in Service, R. Budd, (238)

SOCIETY OF CONSULTING MARINE ENGINEERS:
Freeman, Mr. Sterry, Nominated President, (443)

SOCIETY OF ENGINEERS:
Engineering Aspects of Air Raid Protection, H. Chatley and H. Gutteridge, 529

SOCIETY OF MECHANICAL ENGINEERS, AMERICAN:
Christie, A. G., Nominated President, (67)
Hard Surfacing Processes and Materials, M. L. Begeman, 743
Smoke Density Measurements, H. E. Bumgardner, 372

SOCIETY OF MOTOR MANUFACTURERS AND TRADERS:
British Road Policy, E. L. Burgin, 431

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS:
American Shipbuilding Standards, J. W. Powell, (673)
Care of Ships' Cargoes, O. D. Colvin, W. H. E. Hahne, and M. R. Colby, (645)

SOCIETY OF NAVAL ENGINEERS, AMERICAN:
Determining Natural Modes of Vibration of Structures, H. C. Hayes and E. Klein, 682
Early History of the American Navy, H. M. Neuhaus, 130
Noise Measurements Aboard Ship, H. A. Simms, 345

SOCIETY FOR TESTING MATERIALS, AMERICAN:
Ferrous Metals, 238
Radiography, H. E. Seemann, (121)

Astronomer Royal's Report, Watches and Skilled Labour, 43
Astronomical Clock to be Shown at World's Fair, New York, (93)
Astronomy, Influence of, on Science, F. R. Moulton, 453
Atlantic Cable Laying Developments, 165
Atmospheric Pollution, Conference on, 607
Australian Oil Project Near Sydney, (253)
Automatic Regulation, Recent Developments in, Reavell and Co., Ltd., 19

B

BAKELITE, Ltd., Exhibits at Glasgow, 250
Bakelite Primers, Rapid-drying, 510
Bakelite Wood-faced Material, 742
Base Metal Consumption, The World's, (41)
Baths for Electro-plating of Tin, (733)
Bauxite as an Iron Ore, (443)
Bauxite Mining, British Guiana, Aluminium Union, Ltd., 305
Bauxite, World Supplies of, (471)
Bell, An American Locomotive, 57
Bell, Dynamical Problems in the Design of a Large, J. Dick, 251
Belt Conveyor Model at Glasgow Exhibition, Mavor and Coulson, Ltd., 414
Belt Drives, "Destron" Welded Steel Split Pulley for, Douglas Lawson and Co., Ltd., 510
Benzol Recovery at Dover Gasworks, (154)
Bigwood, Joshua, and Son, Ltd., Merger with Laystall Engineering Co., (227)
Binnie, W. J. E., Presidential Address, Institution of Civil Engineers, 494; (Leading Article, 536)
Bismuth, Tin and, Alloying of, A. C. Davidson, (175)
"Black Labour" in France, 81
Blackstone and Co., Ltd., "A Hundred Years of Progress," (613)
Blower, "XL" Type Soot, Clyde Blowers, Ltd., 413
Blowers and Exhausters for Industrial Application, "Marshall" Roots Type, Sir George Godfrey and Partners, Ltd., 614
Board of Trade Import Duty Announcement, (102), (104)
Bog Blasting, 140

BOILERS:
Arc-welded Pressure Vessels, (121)
Auto-Stoke "W" Type Welded Steel Boiler, Charles McNeil, Ltd., 6
Boiler Construction in Germany, F. Weber, (562)
Boiler Installation in British India Steamship "Amra," Babcock and Wilcox, Ltd., 666 (*Supplement, December 16th*, 1938)
Boiler Mishap, An Interesting (at Ilford, Essex), 177
Clarence Dock Power Station Boilers, Babcock and Wilcox, Ltd., 460
"Economie" Boiler, with Coal-handling and Firing Equipment, Penman and Co., Ltd., 412
Embrittlement of Boiler Steel, 400
Feed-water Heater Boiler Level Control ("Millethern"), Royles, Ltd., 413

BOILERS (*continued*):
Forced Circulation Boilers and their Application for Marine Purposes ("La Mont"), R. E. Trevithick, 656
Fusion Welded Boilers, British Corporation Rules for, 165
Glasgow, Empire Exhibition, Boiler for Palace of Engineering, Wilson Boilermakers, Ltd., 440
La Mont Boiler Installation at Cathcart Works of G. and J. Weir, Ltd., John Thompson Water Tube Boilers, Ltd., 367, 395, 469; (Letter, 424); Test Results, 626
Pitting and Corrosion in Locomotive Boilers, (309)
Pulverised Fuel Firing Equipment Firing Heating Boiler, T. Toward and Co. (1932), Ltd., 249
Soot-blowing Equipment for Works Boilers, British Thomson-Houston Company, Ltd., 76
Velox Boiler Fitted to French Four-cylinder 4–6–0 Locomotive, (253)
Water-tube Boiler, "Beta" Type, John Thompson Engineering Co., Ltd., 469
Water-tube Boilers for "Mauretania," Yarrow and Co., Ltd., 179

Books of Reference—*see* Literature
Boots New Factory at Beeston, Notts, Peter Lind and Co., Ltd., 618, 621
Borer, Mechanical Earth, for Pole Setting, Highway Trailer Co., 100
Boron, Determination of, in Iron and Steel, (335)
Bournemouth District Sewage Scheme, (201)
Box Compound, A Jointing, W. C. Barry, (563)
Bracken Breaker, The Holt, Harrison, McGregor and Co., Ltd., 98
Brake Drums, Lined and Unlined, Mirrlees Watson Co., Ltd., 275
Brake Test of Locomotives, Counter Pressure, 142
Breathing Apparatus for Use in Sewers (Inst. C.E. Booklet), (501)
Brick Making, New System in South Africa, 184
"Bricoseal" Surface Treatment for Piston Rings, British Piston Ring Co., Ltd., (117)

BRIDGES:
Binghampton, U.S.A., Sheet Steel Piling Bridge Piers, (443)
Bluewater International Road Bridge between Sarnia, Ontario, and Port Huron, Michigan, (471), 709
Bray, New Thames Bridge, Sir William Arrol and Co., Ltd., (563)
Bridge Design, A New, André Dulong, 717
Brimsdown Station, Enfield, New Road Bridge, (363)
Bristol, New Lift Bridge, 579
Chicago Lift Bridges, 320
China: The First Builder of Bridges, 207
Chistopol, U.S.S.R., Railway Bridge Over Kama River, (591)
Clayhithe Toll Bridge, (415)
Concrete Bridge, New German, at Hensdorf, (227)
Deer Isle-Sedgewick Suspension Bridge, U.S.A., (309)
Esla Viaduct, Spain, 147, 150
Estuary Bridge Schemes (Humber, Forth, and Severn), 137
Findhorn River Bridge, P. and W. MacLellan, Ltd., 439
Galveston Bay, Texas, Long American Bridge, (389)
Hammersmith Bridge Repairs, 165
Havre, Proposed Bridge Over Seine, (309)
Henry Hudson Bridge, Harlem River, Upper Deck, 512
Keewatin Channel Bridge, Northern Ontario, (389)
Lion's Gate Bridge, Vancouver, (335)
Liverpool Docks, Moving of Bascule Bridge, (281)
Marine Parkway Bridge, New York, 406, 432, 444
Middlesbrough, Bridge to Replace Level Crossing at North Ormesby, (389)
Monsal Dale Viaduct, Derbyshire, Strengthening, 57
Neasden Bridge Widening, L.P.T.B., Cleveland Bridge and Engineering Co., Ltd., 339
Niagara Bridges, 709
Perth-Stirling Road Bridge Over River Ruthven, (149)
Philadelphia Transfer Bridges for Car Barges, 672
Potomac River, Washington, Long Continuous Girder Bridge, 130
Puget Sound, Long Bridge Near Tacoma, U.S.A., (335), (733)
St. Anne River Bridge, Quebec, Long Welded Superstructure, (281)
Seattle Concrete Pontoon Bridge Across Lake Washington, (617)
Tancarville Bridge, Rouen ("A Bridge and Tunnel Controversy"), 377
Thousand Islands Bridges Over St. Lawrence River, (281), 310, 315
Topeka High-level Bridge Over Kansas River, (93)
Toronto, Dual Road Bridges, 443
Tower Bridge Repairs, 165
Tower Bridge Statistics, (253)
Unstone Viaduct, L.M.S. Railway, Strengthening, (501)
Wandsworth Bridge, Southern Approach, (645)
Waterloo Bridge, Peter Lind and Co., Ltd., 222, 228, 669, 674
Weaver Viaducts, Reconstructing the, 551
Wembley Four-span Bridge, L.M.S. Railway, (657)
Western Avenue Viaduct, (201)

BRITISH STANDARDS INSTITUTION:
Guildhall Banquet to International Electrotechnical Commission, (41)
International Electrotechnical Vocabulary, 542

Specifications:
Cable Box Compounds, 47
Carbon Brushes, Parallel-sided, 423

BRITISH STANDARDS INSTITUTION (*continued*):

Specifications (*continued*):
Cast Iron Pipes for Water, Gas, and Sewage, 423
Cast Iron Straight-edges, 47
Ceiling Roses, 598
Chemical Symbols and Abbreviations, 684
Cycle Threads, British Standard, 653
Drums for Lubricating Oils, 684
Electric Cable Sheathings, 132
Electrodes for Spot Welding Machines, 400
Ferrous Pipes for Land Boilers, 484
Galvanised Corrugated Steel Sheets, 47
Limits and Fits, 132
Micrometers; Toolmakers' Flats and Surface Plates; Steel Straight-edges, 746
Motor Starters and Controllers, 598
Oil Burning Equipment, Automatic, 21
Steel for Die Blocks for Drop Forging, 132
Train Lighting Accumulators, 400
Transformers for Low-voltage Lighting, 66
Under-floor Non-metallic Ducts for Electrical Services, 598
Wire Ropes for Cranes, 511
Wires for Telegraph and Telephone Purposes, 598

British Foundry School Report, (175), (253)
British Outlook in China, 442
Broseley Oil Search Abandoned, (701)
Brush Electrical Engineering Co.'s Reorganisation at Loughborough, 719
Building Acts, London, Amendment, 83
Building Materials, Freezing of, W. N. Thomas, (13)
Bulldozer or Grading Machine, Ruston-Bucyrus, Ltd., 423
"Buna" Synthetic Rubber, A. D. Little, Inc., 625
Burgenstock-Hammetschwand Lift, Schindler and Co., 542
"Buried City," The, Report on Underground Planning, by E. J. Goodacre, 283
Burner, Automatic Oil, Clyde Fuel Systems, Ltd., 6
"Buzz Box" Power Units, S. P. Christie, 9
By-product Plant for South Wales, Powell Duffryn Steam Coal Co., Ltd., (93)
By-products Plant, Coking and, at West Hartlepool, South Durham Steel and Iron Co., Ltd., 86, 94, 113, 122

C

CABINET, Filing, New Form of, E. Parent, 235
Cable-laying Developments, Atlantic, 165
Cableway, The Longest, in the Hautes-Alpes, 107
Calcium Carbide Factories, 137
Caldon Low Quarry-blasting Operation, (93)
Calendars, Diaries, &c., 750
"Camac" Tap, Stewarts and Lloyds, Ltd., 386
Canada, Irrigation Survey in, (617)
Canadian Wharf Structures of Steel Sheet Piling, R. F. Legget, 270, 301

CANADIAN ENGINEERING NEWS:
Algoma Steel Corporation, Ltd., Plant Extensions, 212
Blue Water Bridge, Sodium Vapour Lighting, 709
Carbon Black, 212
Carbon Black Plant, Alberta, 388
Economic Conditions, 709
Niagara Bridges, 709
Nickel, 709
Noranda Power Project, 388
Ragged Rapids Hydro-electric Station, 212
Sodium Vapour Lighting, 709
Thermal Tripping Element, Canadian General Electric Co., Ltd., 388
Welding Experiment at Collingwood Shipyard, 212

CANALS:
Albert Canal, Belgium, 269
British Canal Traffic, (281)
China, The Canals of, 280
Conveyance by Water, G. S. Szlumper, 543
German Midland Canal, (501)
Grand Union Canal, Birmingham, Warehouse, (363); Developments, 459; Shipping Interests, (673)
Panama Canal Locks, (335)
Panama Canal Traffic, (281)
Suez Canal Traffic, (250), (645)
Transport Charges and the Canals, (673)

Cane Fibre Expansion Joints, "Flexcell," Celotex, Ltd., (67)
Canton, Engineering Works in, 574
Canton, The New, 574
Cape Town Reclamation Work, 184, 292
Capital and Industry, 549
Carbide Surfaces, Sintered, on Castings, (415)
Carbon, Active, from Bituminous Coal, 269
Carbon Black, Canadian Research, 212
Carbon Black Plant in Alberta, Premier Carbon Black, Ltd., 388
Carbon, Porous, L. C. Werking, (501)
Carpet Shearing Machine, H. W. Aitken Co., Ltd., 354
Castings, Sintered Carbide Surfaces on, (415)
Catalogues, 26, 108, 136, 188, 216, 242, 268, 296, 398, 550, 578, 606, 662, 688, 746
Cement Moulding, Randupson Process of, F. W. Rowe, 211
Cement Sand Preparation Plant, August's, Ltd., 398
Centrifugal for Chemical Industry, Pott, Cassels and Williamson, 355
Centrifugal Machines for Sugar Industry, Watson, Laidlaw and Co., Ltd., 355
Ceramic Insulating Materials and Components, High-frequency ("Calit"), United Insulator Co., Ltd., 570
Chance and the Engineer, 365
Changing Outlook of Engineering Science, R. V. Southwell, 194; (Leading Article, 230)
Chesterfield Tube Co., Ltd., Works Extension, 672
Chicago's Elevated Street, 160
China, Flood Prevention and Other Hydraulic Problems in, 278; (Leading Article, 283)

CHINESE ENGINEERING NOTES:
Apprentices, Chinese, in Britain, 574
Bridges, Beauty of Chinese, 208
Bridges, The First Builder of, 207
British Outlook in China, 442
Canton Engineering Works, 574
Canton Harbour, 574
Canton, The New, 574
Coal and Iron Mines in China, 104
Compression-ignition Engines, 26
Conservancy Committees, 208
Diesel, Dr., The Vision of, 208
Electric Power Figures in China, 104
Electric Utilities in China, 104
Electrical Installations in China, 104
Experts, Engineering, in China, 442
Finance, Methods of, 208
Formosa Hydro-electric Plant, 442
Hydro-electric Plants in North China, 574
Long View in China, The, 574
Materials Imported, 26
Nathan, Sir Matthew, An Engineer as Governor, 104
Road Construction, New, 442
Shanghai Factories, Casualties in, 104
Soya Bean Oil as Fuel for Engines, 208
Spiderlike Reconstruction, 208
Tradition and Experience, 208
Variety in Practice, 208
Workshops in China, 574

Chlorinated Rubber, (335)
Choosing the Right Man, 391
Chorley, Lancs, Ordnance Factory Inspection, (93)
Christie, J. Denham, Resignation from Swan, Hunter and Wigham Richardson, Ltd., (335)
Chromium-plating upon Tin-plate, 546
Civil Engineer, Social and International Problems and the, R. D. Brown, 424; (Leading Article, 417)
Civil and Military Training, Combined, for Engineers, T.W.B., 559
Civilisation Record of 1938, New York World's Fair, (363)
Clarke-Troller Outboard Motor, Treglown, Ltd., 499
Climatological Normals for Egypt and the Sudan, Cyprus, and Palestine, 145
Clock, Astronomical, to be Shown at World's Fair, New York, (93)
Clock, Synchronous Electric Tower, at Norwich, Gillett and Johnston, Ltd., 251
Clyde Dredging, (701)
Clyde, River, Authorities, (501)
Clyde Wharf Extension Scheme, (415)

COAL AND COKE:
Accidents in Coal Mines, (415), (673)
American Coal Mine Blasting, 264
British Coal Mining Statistics, (281)
By-product Plant for South Wales, Powel Duffryn Steam Coal Co., Ltd., (93)
Carbon, Active, from Bituminous Coal, 269
Central Coal Valuation Board, Appointment of, (309)
Coal Commission, Constitution of, 137
Coal Drying in America, 160
Coal Dust Clouds, Inflammation of, T. S. E. Thomas and R. V. Wheeler, (645)
Coal Fuel for Ships, (281)
Coal-handling Plant at Clarence Dock Power Station, 460, 472
Coal Industry Output, (501)
Coal in the Mercantile Marine, Committee's Report, 155; (Leading Article, 151)
Coal and Oil Research, 325
Coal Output, The World's, (733)
Coal-Tar Distilling Plant, Continuous, H. W. Aitken Co., Ltd., 354
Coal Utilisation Research Experimental Station, 489, (510)
Coke Convention, International, (709)
Coke, Low-temperature, Krupp Treibstoff, (415)
Coking and By-products Plant at West Hartlepool, South Durham Steel and Iron Co., Ltd., 86, 94, 113, 122
Coking Industry, The British, (533)
Crushing Machine for Coal or Shale, Sheepbridge Coal and Iron Co., Ltd., 88
Electrical Accidents in Coal Mines, 311
Elevator, "Phec" Coal, Paterson Hughes Engineering Co., Ltd., 413
French Coal Quota, 377
French Coal Reserves, (320)
French Collieries, Requisition of, 429
French Railways Coal Order, (93)
Glasgow, Empire Exhibition, Model Coal Mine, 172
Markham Colliery Disaster Report, 459
Mechanisation of British Coal Mines, (67)
Mercantile Ships, The Use of Coal in, (253), 109
National Coal Convention, The Fourth, (227) (443)
Pickerstonhill, New Coal Mine in Scotland, (227)
Pit Heap Fires, 633
Pithead Baths, (563)
Rhodesian Coal Concessions, 656
Safety in Coal Mines, Royal Commission's Report, 689
Stoker, "Combustioneer" Automatic Mechanical Coal, Mirrlees, Bickerton and Day, Ltd., 274
Thin Sections of Coal, Examination of, (67)
Transportation of Coal at Strip Mines, 559
Tyne Coal and Coke Shipments, (121)
Underground Lighting in Coal Mines, 542
World Coal and Coke Output, (281)
World Coal and Lignite Output, 1937, (67)
World Coal Reserves, (66)

Cofferdams, An Unusual Method of Placing (Deer Isle-Sedgewick Suspension Bridge), (309)
Coisley Hill Sewage Works, Sheffield, 65
Colonial Industrialism, French, 717
Colour of the Thames, (67)
Colvilles, Ltd., Memorial Gift to Glasgow Royal Infirmary, (471)
Compensation Acts Inquiry, Workmen's, 1

COMPRESSORS:

Air Compressor with Scherbius Control, British Thomson-Houston Co., Ltd., 75
Blowers and Exhausters for Industrial Application, Sir George Godfrey and Partners, Ltd., 614
Monobloc Compressor, J. Browett Lindley (1931), Ltd., 46

CONCRETE:

Concrete Aggregates, Building Research Station Report, (41)
Conduit, Strengthening a Concrete, at Toledo, (533)
Dams, Concrete, Stresses Around Galleries in, I. E. Houk, 382
Drainage Pipes, Moulding Concrete, Underground, Allgemeine Transportanlagen A.G., 654
Esla Railway Viaduct, Spain, Reinforced Concrete, 147, 150
Mixers, "Regulus" Portable Concrete, Benford, Ltd., 317
Petrol Tanks, Concrete, La Paroi Hydraulique, 732
Reinforced Concrete Association, Revision of Constitution, (343)
Reinforced Concrete Screw Piles, G. Grimaud, 26
Road Resurfacing, Concrete, in Pennsylvania, (563)

Concepts and Language of Electrical Engineering, G. W. O. Howe, 262; (Leading Article, 255)
Condensers for Clarence Dock, Power Station, Metropolitan-Vickers Electrical Co., Ltd., 461
Condensers for "Mauretania," G. and J. Weir, Ltd., 178
Confederation Generale du Travail (The C.G.T.), 687
Congress, International Acetylene, 1939, (22)
Contract, Specifications *versus*, 160
Contracts and Orders, 26, 56, 70, 108, 164, 188, 216, 242, 296, 324, 350, 378, 404, 458, 488, 518, 628, 718
Conveyor, Belt, Model, at Glasgow Exhibition, Mavor and Coulson, Ltd., 414
Conveyor Belt, Ore, Lighting, in South Africa, General Electric Co., Ltd., 235
Conveyor Installation, A Selective, G. W. King, Ltd., 21
Co-ordination of Transport, G. S. Szlumper, 405
Copper Alloys, Oxidation Resistance in, L. E. Price and G. J. Thomas, 536
Copper-aluminium Alloys, M. L. V. Gayler, 536
Copper Earth Electrodes, Driving, by Kango Hammer, Mansions Motor Co., Ltd., 422
Copper Mines at Otavi, S.W. Africa, 52
Correspondence Courses, British Institute of Engineering Technology, Ltd., (104)
Cousland Oil Bore, G. Dott, 169
Cracks Round Rivet Holes, Detection of, V. Mount, (13)
Craftsmanship and Draughtsmanship, Tenth Annual Competition, (309)
Craftsmanship, French, 29
Crane Gantry for Waterloo Bridge, Peter Lind and Co., Ltd., 222, 228
Crane, New Contractor's, Kryn and Lahy (1928), Ltd., 625
Crane, Timber Yard 3-Ton, R. H. Neal and Co., Ltd., 282, 288
Crisis, Federation of British Industries and the, (471)
Crompton, Colonel R. E., Diamond Jubilee, 57
Crusher, Three-roller, for Sugar Factory, A. F. Craig and Co., Ltd., and H. W. Aitken Co., Ltd., 354
Crushing Machine for Coal or Shale, Sheepbridge Coal and Iron Co., Ltd., 88
Crystalliser, Rapid Cooling "Werkspoor," A. and W. Smith, Ltd., 332
Crystalliser for Sugar Factory, Duncan Stewart and Co., Ltd., 332
Cultivation, Steam Plough, Memorandum on, 217
Cultivator, Tractor and, Four-cylinder 20 B.H.P., 99
Current Prices for Metals and Fuels—*Weekly*
Cutlers' Company, Mr. A. J. Grant Elected Master Cutler, (281)
Cutlers' Feast, The 310th, 431
Cutters, "Titegrip" Rotary Milling, F. Gilman (B.S.T.), Ltd., 569
Cutting Angle of Twist Drills, G. Schlesinger, 650
Cutting Fluid, "Sternopal" Soluble, Sternol, Ltd., 89
Cutting Fluids, The Functions of, H. W. Swift, 441; (Leading Article, 446)
Cutting Fluids and the Machine Tool, A. H. Lloyd and H. H. Beeny, 420
Cyclists and the Roads, (13)
Cylinder Wear, G. Williams, (591)

D

DAMS:

Aigle Barrage, France, 135
Assiut Barrage Remodelling, Coode, Wilson, Mitchell and Vaughan-Lee, 254, 258
Bartlett Dam, Arizona, Multiple-arch Concrete, 400
Boulder Dam-Los Angeles Transmission Line, (471)
Cajalco Reservoir Dam, California, 160
Concrete Dams, Stresses Around Galleries in, I. E. Houk, 382
Earth Dam Construction in America, 160
Fort Peck Earth Dam, Slide on the, 624
Génissiat Dam, River Rhône, 722, 734
Krangede Dam for Hydro-electric Power Scheme, 193, 202, 218, 244
Mo River, North Sweden, Dam at Domsjö, (673)
Parker Dam, America, Completion of, 57
Shasta Dam, California, H. E. M. Kensit, 677
South African Storage Dams, New, 292

Dalkeith Oil Boring Increase, (227)
Damping, Elasticity and, in Relation to the State of the Material, F. Forster and W. Koster, 626
Darcy Farm Oil Bore, G. Dott, 169
Darwin, Dr. C. G., Appointed Director, N.P.L., 405
Defence in South Africa, 425
Deflection, Gear Tooth, and Profile Modification, H. Walker, 409, 434; (Letters, 500)
Democracy, Engineering and, 535
"Destron" Split Pulley for Belt Drives, Douglas Lawson and Co., Ltd., 510
Detection of Cracks Round Rivet Holes, V. Mount, (13)
Dickinson, H. W., Honorary Degree of Doctor of Engineering, (483)
Distilling Plant, Continuous Coal Tar, H. W. Aitken Co., Ltd., 354
Distributor, "Nu-Drive" Fertiliser, Bamfords, Ltd., 74
Diving, New Air Mixture for, (201)

DOCKS AND HARBOURS:

Cape Town Harbour, 426
Cardiff Dry Dock Scheme, (471)
Canton Harbour, 574
Colombo Graving Dock, 83, (617)
Durban Floating Dock, Furness Shipbuilding Co., Ltd., (149)
Falmouth Port Improvement Works, (563)
Floating Dock, Russian Concrete, Komintern Shipyards, (591)
Folkestone Harbour Improvement Works, (471)
Goole Docks Improvements, (13), 31
Hull Docks Congestion, (175)
Langesund Dry Dock for Whaling Factory Ships, (67)
L'Anse au Beaufils Fishing Harbour, P.Q., R. F. Legget, 271
Leipzig Port, Proposed, (13)
Liverpool Docks, Moving a Bascule Bridge, (281)
London Docks, R. R. Liddell, (645)
Marseilles Dock Strike, 215, 267, 295, 323, 349
Mossel Bay Harbour, South Africa, 52
Philippine Harbour Work, (121)
Port of London Authority, Annual Report, 217
Rosyth Dockyard, 633, 663
Seaham Harbour Approaches, (253)
Sharpness Docks, The Electrification of Hydraulic Machinery at, Vickers-Armstrongs, Ltd., 344
Singapore Port Works, (175)
South African Harbour Tonnages Drop, 655
South Wales Dock Facilities, (701)
Southampton Docks Centenary, (387)
Southampton Docks Improvements, Sir R. McAlpine and Sons, Ltd., (645)
Troon Dock Improvements, (227)
Venezuelan Harbour Project, (175)

Documents, Photographic Reproduction of, (363)
Door, A New Inspection, D. Adamson and Co., Ltd., 653
Dover Gasworks, Benzol Recovery, (154)
Drag Scraper for Belfast Harbour Power Station, Fraser and Chalmers Engineering Works, 210
Drainage, London's Main, (563)
Drainage Pipes, Moulding Concrete, Underground, Allgemeine Transportanlagen, A.G., 654
Draughtsmanship, Craftsmanship and, Tenth Annual Competition, (309)
Drill Pipes for Oil Drilling in Britain, G. Dott, 191
Drill, Small Electric, Black and Decker, Ltd., 709
Drills, Lightweight, Pneumatic Rock, Broom and Wade, Ltd., 742
Drills, Twist, The Cutting Angle of, G. Schlesinger, 650
Drive, Variable-speed "P K" Type, Wm. Prym, 212
Driving, Individual Electric, 520, 552, 580, 608, 634, 664, 690
Dry Ice, The Production and Use of, J. Kobold, Masch. Esslingen, 560
Dry Rot in Wood, 351
Dumper, Petrol-engined, 2½-Yard, Aveling, Barford, Ltd., 39
Dunlop Rubber Exhibits at Glasgow, 470
Durban Paper Mill, National Pulp and Paper Co., Ltd., 292
Durban Trolleybuses, (67)
Durban's Sewerage Scheme, 90
Durham, F. E. F., Retirement from Metropolitan Water Board, 719
Dyestuffs Industry, The Founder of (Sir W. Perkin), H. Levinstein, (591), 615
Dyke and River Bank Revetment, Mississippi River, 130, 400
Dynamical Problems in the Design of a Large Bell, J. Dick, 251

E

EARTH Anchor, Kennedy and Kempe, Ltd., 99
Earth Moving Scoops, J. and H. McLaren, Ltd., 342
Ebbw Vale, Richard Thomas and Co., Ltd., and, 31
Eckersley, Dr. J., Appointed Principal, Manchester College of Technology, 83
Economic Conditions in Canada, 709
Education, From Works Management, to Works Management, T. H. Burnham, 158, 183
Efficiency of Hand Work, Improving the, J. F. Romer, 338; (Letter, 537)
Efficiency, Production and, A. L. Bowley, 658; (Leading Article, 647)
Egypt, Floods in, 243
Elasticity and Damping in Relation to the State of the Material, F. Forster and W. Koster, 626

ELECTRICAL MATTERS:

Aluminium from Power Station Waste, (175)
Anglo-American Trade Agreement, The Electrical Industry and the (B.E.A.M.A. Statement), 689
Arc Suppression Coils, Metropolitan-Vickers Electrical Co., Ltd., 260
Bakelite, Ltd., Exhibits at Glasgow, 250
B.E.A.M.A. Dinner, (589)

ELECTRICAL MATTERS (*continued*):

Belfast Harbour Power Station, Drag Scraper for, Fraser and Chalmers Engineering Works, 210
Birmingham Electricity Failure, 570
Boulder Dam, Los Angeles, Transmission Line, (471)
British Thomson-Houston Co., Ltd., I.E.E. Visit to Rugby Works, 75
Cable, Low-resistance Electric, M. A. Peters, (617)
Canadian Electrical Industry, (533)
Canadian Electricity Generation Statistics, (121)
Cape Town's New Power Station, 184
Carbon Pile Voltage Regulators, J. Stone and Co., Ltd., 233
Cardiff Power Station Extensions, (645)
Cartridge Fuses, High Rupturing Capacity, General Electric Co., Ltd., 289
Charges, Electricity, 297
China, Electric Power Demand, 104
China, Electrical Installations in, C. C. Bojesen, 104
Chinese Electric Utilities, 104
Circuit Breaker Standards, H. Rissik, 495
Circuit Breakers, Oil, with Spring Closing Mechanism, General Electric Co., Ltd., 371
Clarence Dock Power Station, Liverpool Corporation, 460, 472
Clock, Synchronous Electric Tower, at Norwich, Gillett and Johnston, Ltd., 251
Coal Mines, Electrical Accidents in, 311
Combustion, Direct, Production of Electricity by, C. F. Hirshfeld and R. M. Vanduzer, 636
Concepts and Language of Electrical Engineering, G. W. O. Howe, 262; (Leading Article, 255)
Conductor Wires for Telephones, (309)
Control Boards, Diagram for Power Plants, A. Reyrolle and Co., Ltd., 34
Control, Centralised, of Public Lighting and Off-peak Loads, General Electric Co., Ltd., 388
Control System, A New Electric ("Telecontrol"), A.E.G. Electric Co., Ltd., 421
Crompton, Colonel R. E., Diamond Jubilee, 57
Dalmarnock Power Station, 50,000-kW Turbo-alternator, C. A. Parsons and Co., Ltd., 60, 68 (*Supplement, July 15th*, 1938)
Drill, Small Electric, Black and Decker, Ltd., 709
Driving, Individual Electric, 520, 552, 580, 608, 634, 664, 690
Earth Electrodes, Driving, by Kango Electric Hammer, Mansions Motor Co., Ltd., 422
Earthing Electrical Installations to Water Pipes and Mains, 210
Electricity Commissioners, Annual Report, 479
Electricity Commissioners, Official Returns, June, (67); July, (175); August, (309); September, (415); October, (591); November, (673)
Electrotechnical Vocabulary, International, 542
Fence, "Prime" Electrical, Harvest Saver and Implement Co., Ltd., 126
Ferguson Pailin, Ltd., Visit to Switchgear Works, 611
Ferraris-Arno System of Single-phase to Three-phase Conversion, British Thomson-Houston Co., Ltd., 509
Flare Path for Empire Flying Boats, 351
Furnaces, Mutator-operated, Induction, Brown Boveri and Co., 333
General Electric Co., Ltd., Directors' Fifty Years' Service, (13)
Generating Set, Dual Engine, Parsons Engineering Co., Ltd., 157
Generating Set, Oil Engine, 3 B.H.P., Stuart Turner, Ltd., 466
Generator, Million-volt Impulse Testing, British Thomson-Houston Co., Ltd., 76
Generator Set, Portable Electric, Bradby's Engineering Works, Ltd., 423
Glasgow, Empire Exhibition, Lighting System, General Electric Co., Ltd., 225
Grid, The, and the Oil Engine Industry, 474, 644
Hams Hall Power Station, Birmingham, Failure, 570; New Cooling Towers, (671)
Handlamp, An Improved Electric, British Central Electric Co., Ltd., 208
Heating, Electrical, The Economics of, 535
Higgs Motors, Ltd., Educational Film, (733)
Ignitron Loading Equipments for Traction Sub-stations, British Thomson-Houston Co., Ltd., 396
Instruments, Engineering, C. C. Mason, 329
Insulating Materials, and Components, High-frequency, United Insulator Co., Ltd., 570
Insulators, Long Service of Transmission Line, in Canada, 387
"Isofuse," New Triple-pole Switch, Brookhirst Switchgear, Ltd., 597
Kingston Electricity Failure, 703
Klingenberg Power Station, Economy at, (253)
Lamp Factory at Port Elizabeth, South Africa, 52
Lamps and Eyes, A. D. S. Atkinson, 77
Lighting, Ore Conveyor Belt, in South Africa, General Electric Co., Ltd., 235
Lighting Regulations of the Factory Act, (281)
Lighting Set, Oil Engine, 3-kW, John Fowler and Co. (Leeds), Ltd., 126
Lighting Set, Petrol Engine-driven, ¾-kW, Ruston and Hornsby, Ltd., 708
Lighting, Underground, in Coal Mines, 542
Lightning Causes Train Stoppage, Southern Railway, 31
Locomotive, Electric Flameproof, Greenwood and Batley, Ltd., 451
Locomotive, High-speed Electric, Moscow Dynamo Works, (471)
London and Home Counties Electricity Authority, Electricity Charges, 297; Extension Powers, 663
Machine Tools, Electric, 160
Magnetic Alloys and X-ray Structure (B.A. Discussion), 330

ELECTRICAL MATTERS (*continued*):

Magnetic Measurements with Special Reference to Incremental Conditions, 307
Magnetic Quality, The Control of by Surface Treatment, 474, 731
Metadyne Applied to Electric Traction, Metropolitan-Vickers Electrical Co., Ltd., 538
Meter, Direct-reading Air Velocity ("Velometer"), Metropolitan-Vickers Electrical Co., Ltd., 88, 571
Midlands, S.W., Electricity District Report, 137
Mines, Electricity in, Annual Report, 269
Mines, Electricity in, J. Jones, (451)
Morris, Professor J. T. MacGregor, Retirement of, 31
Motor, Ward-Leonard 540 H.P. for Pilger Mill Equipment, Jarrow Tube Works, 493
Motors, Fractional Horse-power, and Capacitor, English Electric Co., Ltd., 224
Motors for Individual Electric Driving of Machine Tools, British Thomson-Houston Co., Ltd., 580
Motors, Inverted Synchronous Induction, Metropolitan-Vickers Electrical Co., Ltd., 200
Motors, Low Starting Current, Higgs Motors, Ltd., 334
Mutators with Uncontrolled and Controlled Grids, Brown Boveri, 452
Natal Electricity Development, 655
New South Wales Electrical Development Scheme, Rendel, Palmer and Tritton, 1
New York Power Corporation, New Power Station at Oswego, (415)
Non-destructive Testing, General Discussion, 451, 629, 626; (Leading Article, 619)
Northern Ireland, Electricity Generation in, (471)
Off-peak Loads, Public Lighting and, Centralised Control of, General Electric Co., Ltd., 388
Oil Circuit Breakers with Spring Closing Mechanism, General Electric Co., Ltd., 371
Oil Engine Industry, The Grid and the, 474, 644
Papermaker, The Grid and the, L. N. Burt, 651; (Letter, 672)
Peat Fuel Power Station at Clonsast, Eire, (259)
Personnel in Industry, A. P. M. Fleming, 467; (Leading Article, 473)
Planer Drive, Lancashire Dynamo and Crypto, Ltd., 690
Portsmouth Power Station Accident, (533)
Portsmouth Power Station Extensions, (121)
Power Station Scheme, American, (471)
Power Stations, Oil-engined, American, 400
Power Stations, Superimposing in, G. A. Orrok, 77
Pretoria Power Extensions, 545
Protective Systems, Self-check Merz-Price, and "Dualock," A. Reyrolle and Co., Ltd., 34
Railway Electrical Developments in America, 736
Rand Power Demand, (309)
Rolling Mill and Furnace Equipment, Electric, General Electric Co., Ltd., 206
Russian Power Production, (645)
"Safetyvolt" Extra Low-voltage Lighting Transformer, Hackbridge Electric Construction Co., Ltd., 398
Saw, An Electric Arc, Miller Electric Manufacturing Co., (227)
Scherbius Control for Variable-speed Air Compressor, British Thomson-Houston Co., Ltd., 75
Searchlight, C.A.V.-Bosch, Ltd., 500
Sharpness Docks, The Electrification of Hydraulic Machinery at, Vickers-Armstrongs, Ltd., 344
Ships, Electric Heating for, H. C. MacEwan, (591)
Ships, Electric Propulsion of, L. R. Horne, (733)
Single-phase to Three-phase Conversion, British Thomson-Houston Co., Ltd., 509
Sodium Vapour Lighting, Blue Water Bridge, Canada, 709
Soot Blowing Equipment, Electrically Operated, British Thomson-Houston Co., Ltd., 76
South Africa, Electricity Boom in, 280
South African Electric Power Development, 52
Southern Railway, Littlehampton and Bognor Regis Electrified Extension, 7, 14
Southern Rhodesia, Electrical Grid, (93)
Staff Locator, An Electrical, Gent and Co., Ltd., 182
Sterilising Chest, 27 Cubic Feet, General Electric Co., Ltd., 39
Street Lighting, Centralised Automatic Control of, E. E. Hoadley and H. P. Baker, 99
Sub-stations, Transformer, The Reduction of Noise from, British Thomson-Houston Co., Ltd., 341
Superimposing in Power Stations, G. A. Orrok, 77
Switch and Fuse Unit, High Rupturing Capacity, Switchgear and Cowans, Ltd., 397
Switch House, Model 66-kV, Metropolitan-Vickers Electrical Co., Ltd., 89
Switch, A New Triple-pole ("Isofuse"), Brookhirst Switchgear, Ltd., 597
Switch, Novel Motor Control, L.P.T.B., (253)
Switch Pillar, Flameproof Draw-out, English Electric Co., Ltd., 225
Switchgear at Clarence Dock Power Station, George Ellison, Ltd., 463
Switchgear, Metal-clad E.H.T., for Durban, Allen West and Co., Ltd., 101
Switchgear, 132-kV Metal-clad Oil-filled, A. Reyrolle and Co., Ltd., 34
Switchgear, Testing Electrical, 431
Switchgear Works, A Visit to a, Ferguson Pailin, Ltd., 611
Table Bay Power Station, 656
Tap-changing Gear, Resistance and Reactance, A.S.E.A. Electric Co., Ltd., 317
Technical and Economic Developments in Electrical Engineering, S. B. Donkin, 50
"Telecontrol," New Electric Control System, A.E.G. Electric Co., Ltd., 421

ELECTRICAL MATTERS (*continued*):

Thermal Tripping Element, Canadian General Electric Co., Ltd., 388
Tir John Power Station Extensions, (645)
Transformer, An Extra Low-voltage Lighting ("Safetyvolt"), Hackbridge Electric Construction Co., Ltd., 398
Transformer, A Large Transportable, 120,000 kVA, A.E.G., 422
Transformer Oil Fires, Extinguishing, (201)
Transformer Sub-stations, The Reduction of Noise from British Thomson-Houston Co., Ltd., 341
Transformers, Transients in, F. B. Greatrex, 231
Transmission Line Insulators, Long Service of, in Canada, 387
Triple-pole Switch ("Isofuse"), Brookhirst Switchgear, Ltd., 597
Turbo-alternator, 50,000-kW, at Dalmarnock, C. A. Parsons and Co., Ltd., 60, 68 (*Supplement, July 15th*, 1938)
Turbo-generator Set, 54,000-kW, for Brimsdown A Power Station, Metropolitan-Vickers Electrical Co., Ltd., 88
Turbo-generator Sets, 51,500-kW, for Clarence Dock Power Station, Metropolitan-Vickers Electrical Co., Ltd., 461
Turbo-generators, 800-kW, 225-Volt, for "Mauretania," British Thomson-Houston Co., Ltd., 179
Turbo-generators, 2200-kW, for "Queen Elizabeth," British Thomson-Houston Co., Ltd., 394
Turbo-generators, Various, British Thomson-Houston Co., Ltd., 76
Velometer, "Alnor," for Measurement of Air Velocities, Metropolitan-Vickers Electrical Co., Ltd., 88, 571
Vibrometer, A Moving-coil, G. O. Eccles, 232
Voltage Regulators, Carbon Pile, J. Stone and Co., Ltd., 233
Voltage Regulators of Ungoverned Generating Sets, R. S. Tener and E. S. Dibble, 154
Voltage Standardisation, Sir Cyril Hurcomb, 579
Washing Machine for Meter Parts, Metropolitan-Vickers Electrical Co., Ltd., 510
Water Pipes as Earths, Institution of Civil Engineers' Committee, (121)
Welder, A Large Resistance, British Insulated Cables, Ltd., 510
Welding Generator, Laurence Scott and Electromotors, Ltd., 682
Welding Machine, Automatic Arc, Metropolitan-Vickers Electrical Co., Ltd., 670
Winding Plant, A.C., at Pinxton Colliery, Metropolitan-Vickers Electrical Co., Ltd., 88
Wooden Poles in Transmission Line Service, S. R. Siviour, (617)
World Power Conference, Vienna, 165
X-ray Analysis and the Properties of Materials, 565
X-ray Equipment, High-tension, National Research Council of Canada, 746
Yorkshire Electric Power Co., New Power Station, (533)
Electro-deposition of Metal, Fescol, Ltd., 477
Electro-plating of Tin, Baths for, (733)
Electrotechnical Commission, International Guildhall Banquet, (41)
Elevator, "Phec" Coal, Paterson Hughes Engineering Co., Ltd., 413
Employers, Training French, 577
Employment in Germany, (93)
Employment Returns, Ministry of Labour, 31, 165, 269, 379, 519, 633
Energy Content of High-pressure Gases, E. W. Geyer, 256
Energy, Future Generation of, in America, 454
Energy Sources of the World, (93)
Engineer, Chance and the, 365
"Engineer," The Definition of an, 417
Engineer, The Status of the, H. Chatley, 489
Engineering Aspects of Air Raid Protection, H. Chatley and H. Gutteridge, 529
Engineering, The Contributions of, to Physics, M. L. E. Oliphant, 319
Engineering and Democracy, 535
Engineering Firms and Rearmament, 31
Engineering Industrial Organisation, Lord Dudley Gordon, 654
Engineering Instruments, C. C. Mason, 329
"Engineering Opportunities," British Institute of Engineering Technology, Ltd., (104)
Engineering Profession, Problems before the, A. A. Potter, 103; (Letters, 119, 145, 174)
Engineering Public Relations Committee, Lectures on "The Engineer and the Community," 343; Public Health Exhibit, 542
Engineering Science, The Changing Outlook of, R. V. Southwell, 194; (Leading Article, 230)
Engineers and Export Trade, W. Paterson, 243
Engineers' Guild (Letters), 119, 200, 259, 333, 361, 424, 450
Engineers' Guild, Policy and Aims, Extracts from Pamphlet, (562), 584
Engineers, National Council of, 95; (Letter, 119)
Engineers and National Fitness, 337
Engineers and the Peace of the World, 391; (Letter, 450)
Engineers and World Peace, A. C. Gardner, 480
Engineers and World Politics, 417

ENGINES:

Associated Equipment Co., Ltd., Works at Southall, 678, 697, 702, 726
Clerk, Dugald, and the Gas Engine, W. A. Tookey, 663
Compression-ignition Engines in China, 26
Decarbonising Motor Engines, New Method, Ford Motor Co., Ltd., (733)
Diesel, Dr., The Vision of, 208
Dual Engine Generating Set, Parsons Engineering Co., Ltd., 157
Fire Engine, Six-cylinder, 60 B.H.P., Merryweather and Sons, Ltd., 72
Generator Set, Portable Electric, Bradby's Engineering Works, Ltd., 423
Marine Engine, Eighteen-cylinder, 950 B.H.P., Isotta-Fraschini, Vosper, Ltd., 498
Marine Engine, Twelve-cylinder, 500 B.H.P., "Sea Lion," British Power Boat Co., Ltd., 465

ENGINES (*continued*):

Marine Oil Engine in America, J. E. Burkhardt, 11
Marine Oil Engine, Eight-cylinder, 136 B.H.P., Norris, Henty and Gardners, Ltd., 465
Marine Oil Engine, 8000 S.H.P., Model, W. Doxford and Sons, Ltd., 199
Marine Oil Engines, 120 B.H.P. and 72 B.H.P., Gleniffer Engines, Ltd., 500
Oil Engine, Compression-ignition "R J/3" Type, J. I. Thornycroft and Co., Ltd., 500
Oil Engine, Direct Injection, Associated Equipment Co., Ltd., 120
Oil Engine, The First British, Mirrlees, Bickerton and Day, Ltd., 274; (Letter, 316)
Oil Engine, Four-cylinder, 35 S.H.P., Victor Oil Engines (Coventry), Ltd., 499
Oil Engine Generating Set, 3 B.H.P., Stuart Turner, Ltd., 466
Oil Engine, 6 B.H.P. Horizontal, Ruston and Hornsby, Ltd., 73
Oil Engine Industry, The Grid and the, 474, 644
Oil Engine Lighting Set, 3-kW, John Fowler and Co. (Leeds), Ltd., 126
Oil Engine, Opposed-piston, Four-cylinder, for M.S. "Regent Tiger," Swan, Hunter and Wigham Richardson, Ltd., 287
Oil Engine, Six-cylinder, 360 B.H.P. "U" Type, Mirrlees, Bickerton and Day, Ltd., 274
Oil Engine, Sixteen-cylinder Lightweight Marine, 1000 B.H.P., Davey, Paxman and Co. (Colchester), Ltd., 91
Oil Engine, 24 B.H.P., for Stainless Steel Lifeboat, Gleniffer Engines, Ltd., 250
Oil Engine, Twin-cylinder "L.M.," 20 B.H.P., J. H. McLaren, Ltd., 125
Oil-engined Locomotive, 16–20 B.H.P., Ruston and Hornsby, Ltd., 73
Oil-engined Picket Boat for Royal Navy, John I. Thornycroft, Ltd., 129
Oil-engined Road Roller, "H" Pattern, Wallis and Steevens, Ltd., 98
Oil Engines in B.B.C. Stations, L. Hotine and P. H. Smith, (471)
Oil Engines, British, and Shipyard Orders, Petters, Ltd., 1
Oil Engines for Drainage Pumps, 160
Oil Engines, 12,500 S.H.P., for Motorship "Oranje," Sulzer Brothers, 361
Oil Engines, Four-cylinder, 56 B.H.P., Marine, and Single-cylinder, 10 B.H.P. "B.V.D.," Crossley Brothers, Ltd., 467
Oil Engines, Reversible, Six-cylinder, for Sewage Sludge Vessels, Ingersoll-Rand, 587
Oil Engines, Six-cylinder, 90 B.H.P., Marine, and 5 H.P. "S.W." Type Stationary, H. Widdop and Co., Ltd., 466
Outboard Motor, The Clarke Troller, Treglown, Ltd., 499
Parsons Rotating Cylinder Steam Engine, E. E. B. Mackintosh, 174
Petrol Engine, Four-cylinder, 48 B.H.P., Mercedes-Benz, 449
Petrol Engine, "P.A.M.," 2½ B.H.P., John Fowler and Co. (Leeds), Ltd., 126
Petrol Lighting Set, ¾-kW, Ruston and Hornsby, Ltd., 708
Petrol/paraffin, Air-cooled and Hopper-cooled Engines, Petters, Ltd., 39
Petters, Ltd., Oil Engine Business Acquired by Brush Electrical Engineering Co., Ltd., 297
Powdered Fuel Engine Tests (Fuel Research Board Report), 700
Precombustion Ignition Coal Oil Engine, R. G. Bellamy, 39, 70
Reheater Steam Engine, Triple-expansion Model, North-Eastern Marine Engineering Co., Ltd., 199
Soya Bean Oil as Fuel for Engines, 208
Steam Engine, Single-cylinder, 40 B.H.P., Ashworth and Parker, Ltd., 413
"Superscavenge" Oil Engine, 250 H.P. Two-stroke, 10; 125 B.H.P., at Cornish Stone Quarry, Petters, Ltd., 570

Equipment, Works', in France, 349
Erosion, Soil, F. Newhouse, 497, 522
"Everdur" Hot Water Storage Tank, A. McAra, 20
Excavator, Improved "Two-Ton," T. Smith and Sons (Rodley), Ltd., 598
Exhausters, Blowers and, for Industrial Application, "Marshall" Roots Type, Sir George Godfrey and Partners, Ltd., 614

EXHIBITIONS:

Building Exhibition, Olympia, 325
Canadian National Exhibition, Toronto, (175)
Glasgow, Empire Exhibition, Attendances, (149), (253); Closing, (501); Coal Pavilion, 412; Descriptions of Exhibits, 5, 34, 62, 87, 115, 147, 172, 198, 224, 249, 273, 305, 330, 354, 385, 412, 438, 468; Fine Aluminium Wire, (13); Lighting System, General Electric Co., Ltd., 225; Miscellaneous Exhibits, 470; "Steel Industry, Scotland," Pavilion, 468; Sugar Machinery Exhibit, 330, 354; United Kingdom Government Pavilion, 147, 172, 198
Heating, Ventilating and Air Conditioning Exhibition, (533)
Leipzig Fair—Propaganda and Foreign Trade (*Craven Machine Tool Gazette*), 10; (Leading Article, 16)
Model Engineer Exhibition, (121), 343
Motor Show at Earls Court, (392), 448, 464, 498
New York World's Fair, (93), (363), 400, (415)
Paris Aircraft Show, (501), 648
Paris Motor Car Show, 440
Public Health Exhibition, 551
Royal Agricultural Show at Cardiff, 37, 72, 97, 125
San Francisco World's Fair, 624
"Science in the Army" Exhibition, 595
South Africa Empire Exhibition, 1936, 184
Zurich Exhibition, Swiss Railways and the (701)

Experts, Engineering, in China, 442
Export Trade, Engineers and, W. Paterson, 243
Export Trade and the Future, 489
Export Trade, Prices and, 459
Extractor, Centrifugal Oil, Watson, Laidlaw and Co., Ltd., 273
Extremists, Disavowal of, in France, 323
Eye Protection in High Temperature Operations, R. R. Butler, 24
Eyes, Lamps and, A. D. S. Atkinson, 77

F

FABRICATED Gear Units, David Brown and Sons (Hudd.), Ltd., 101
Factories Act, The New, 57, (281), 297; Notification of Diseases, (653)
Factories in Great Britain, New, (182)
Factories, Lighting in, 607
Factories, New, in South Africa, 52
Factories, The Output of (London and Cambridge Economic Service Memorandum), 311
Factory Inspector's Report, Sir Duncan Wilson, 165
Factory, The New Wedgwood, 297
Fatigue Tests of Riveted Joints, W. M. Wilson and F. P. Thomas, (363)
Federation of British Industries and the Crisis (471); Industry and Defence Committee, 579
Feeder, "Hardinge" Constant-weight, International Combustion, Ltd., 63
"Feedright" Weighing and Rationing Machine, Alfred Herbert, Ltd., 98
Fen Drainage Proposal, 189
Fence, "Prime" Electrical, Harvest Saver and Implement Co., Ltd., 126
Ferguson-Brown Tractor Works, Huddersfield, 729
"Ferron" Material from Waste Pickling Acid, (389)
Ferrous Metals, 238
Fertiliser Distributor, The "Nu-Drive," Bamfords, Ltd., 74
Fescol, Ltd., New Works, 477
Filing Cabinet, New Form of, E. Parent, 235
Film, Educational, Higgs Motors, Ltd., (733)
Filter, Rotary Leaf, Mirrlees Watson Co., Ltd., 356
Finance, Chinese Methods of, 208
Finland Port Improvements, (421)
Fire-engines and Appliances, "Greenwich" and "Hatfield," Merryweather and Sons, Ltd., 72
Fire Escape with Life-saving Cage, Leyland Motors, Ltd., (617)
Fires, Extinguishing Transformer Oil, (201)
Fires, Pit Heap, (201)
Firing Equipment, Pulverised Fuel, T. Toward and Co. (1932), Ltd., 249
Fitness, National, Engineers and, 337
"Flexcell" Cane Fibre Expansion Joints, Celotex, Ltd., (67)
Flood Control by Government in America, 454
Flood, The Nile, F. Newhouse, 243, (281), 304
Flood Prevention and other Hydraulic Problems in China, 278; (Leading Article, 283)
Floods in the East, 243
Flow of Fluids, Velocity Profiles and, through a Contracted Pipe Line, F. V. A. E. Engel and A. J. Davies, 720
Fluid, Soluble Cutting, "Sternopal," Sternol, Ltd., 89
Fluids, Cutting, The Functions of, H. W. Swift, 441; (Leading Article, 446)
Foreign Trade, French, 81, 631
Foreign Trade, Propaganda and (*Craven Machine Tool Gazette*), 10; (Leading Article, 16)
Foreign Trade, Why? 672, 699
Forest Gas for Traction, 230
Forest Products Research Board, Annual Report, 217
Forthcoming Engagements—*Weekly*
Forty-eight Hours Week in France, 661
Forty Hours' Liquidation in France, 267
Forty-hours Week and Overtime in France, 241
Foundry Research and Practice, American, 400
Foundry School, British, Report, (175), (253)
Fountain Display at Glasgow Exhibition, Drysdale and Co., Ltd., 115
Fractures, Interesting Shaft, British Engine Boiler and Electrical Insurance Co., Ltd., 590
Franco-British Trade, 135
Fredericton, N.B., Wharf Construction at, R. F. Legget, 301
Freezing of Building Materials, W. N. Thomas, (13)

FRENCH ENGINEERING NOTES:

Aigle Barrage (Marèges), 135
Apprenticeship, 377
Arbitration Complications, 187
Armament Case, A Nationalised, 163
Armament Production, 517
Armaments and Steel Production, 429
Artisanship, Ideals of, 749
Barrage, A Novel (Aigle), 135
Black Labour, 81
Bouton, Georges, Motor Car Pioneer, 549
Bridge Design, A New, A. Dulong, 717
Bridge and Tunnel Controversy, 377
Cableway, The Longest, 107
Capital and Industry, 549
Channel Tunnel, 81
Coal Quota, 377
Collieries, Requisition of, 429
Colonial Industrialism, 717
Confederation Générale du Travail, 687
Craftsmanship, 29
Employers, Training, 577
Extremists, Disavowal of, 323
Foreign Trade, 81
Foreign Trade Agreements, 631
Forty-eight Hours' Week, 661
Forty Hours' Liquidation, 267
Forty Hours and Overtime, 241
Franco-British Trade, 135
Hydro-electric Power Stations, 107
Hydro-electric Supply, 29
Industrial Initiative, 549
Industrial Outlook, The, 749
Industrial Recovery, Hopes of, 187
Industrial Situation, A New, 403
Industrial Structure, A New, 577, 661
Industrial System, A Changing, 517

FRENCH ENGINEERING NOTES (*continued*):

Iron and Steel Trade Difficulties, 29
Labour Discipline, 457
Labour Restraint, 349
Labour Union Agitation, 295
Liner, Proposed New, Cie. Générale Transatlantique, 457
Machinery and Labour, 403
Marseilles Dockers' Dispute, 215, 267, 295, 323, 349
Miners' Agreement (Disavowal of Extremists), 323
Motor Fuels, National, 55
National Railway Deficit, 55
Nationalised Production, Effect of, 163
Naval Construction, 267
"Normandie," Proposed Sister Ship, 457
North Atlantic Air Flight ("Lieutenant-de-Voisseau-Paris"), 295
Paris Passenger Transports, Unifying, 605
Paris Underground Roads, 749
Petrol Pipe Line Between Douges and Montargis, 215
Prices, Stabilised, 215
Production Plan, A New, 517
Production Problems, 487
Public Works, 107
Public Works, Suspension of, 605
Railway Economies, 349, 429
Railway Electrification, 241
Railway Work, 241
Road Making in Africa, 323, 631
Road and Rail Co-ordination, 55, 457, 487, 687
Sahara Road Construction, 323, 631
Shipbuilding, 717
Stabilised Prices, 215
Strike Outbreak, 631, 661
Tancarville Tunnel, Rouen ("A Bridge and Tunnel Controversy"), 377
Training Employers, 577
Trans-African Motor Road, 403
Under Production, 577
Women Engineers, 487
Work, A Plea for, 187
Working Hours, 163, 295, 605
Works' Equipment, 349

French Industrial Revolution, Lessons of the, 69
French Three Years' Plan, 593
Frontinus, W. J. E. Binnie, 494; (Leading Article, 535)
Froude, William, Laboratory, Annual Report, 431
Fuel Oil, Production of, in South Africa, 426
Fuel Research Board, Annual Report, 689, 700
Fuel Trends in the United States, (617)

FURNACES:

American Blast-furnace Statistics, (591)
American Electric Furnace Practice, W. M. Farnsworth and E. R. Johnson, 504
Blast-furnace Model at Glasgow Empire Exhibition, 174
Blast-furnaces in the North-East, (149)
Blast-furnaces, Pressure Operation of, 160
Electric Arc Furnace, 15-ton, at Jarrow Metal Works, Metalectric Furnaces, Ltd., 490
Electric Furnaces in European Steel Works, D. F. Campbell, 504
Mutator-operated Induction Furnaces, Brown Boveri Co., 333
Oil-fired Rotary Melting Furnace, Stein and Atkinson, Ltd., 42, 52
Rolling Mill and Furnace Equipment, Electric, Ben. Bennett, Junr., Ltd., 206

G

GALERKIN'S Method in Mechanics and Differential Equations, W. J. Duncan, 70
Gas Conservation, Natural, in Alberta, (389)
Gas Engineering as a Career, Sir F. West, 297
Gas Exhibits at Science Museum, (501)
Gas Grid, A New Yorkshire, 689, 719, (733)
Gas Output in the British Isles, (733)
Gas Power for Sewage Works at Peoria, America, 259
Gas Producer, The Modern Portable, H. Goldman and N. C Jones, 712, 740; (Leading Article, 703)
Gas Referees Abolished, (673)
Gases, High-pressure, Energy Content of, E. W. Geyer, 356
Gasholder Station, Remote Control of a, by Ediswan "Loudspeakerphone," (677)
Gasholder, Welded Waterless, for Ford Motor Co., Horseley Bridge and Thomas Piggott, Ltd., 127
Gear Modification, Involute, F. Whiteley, 523
Gear Performance, H. E. Merritt, 2, 32, 58, 84, 110, 138, 166, 190
Gear Tooth Deflection and Profile Modification, H. Walker, 409, 434; (Letters, 500)
Gear Units, Fabricated, David Brown and Sons (Hudd.), Ltd., 101
Gear, "VSG" Hydraulic, Variable Speed Gear, Ltd., 664
Gears, Spiral Bevel Rear Axle, David Brown and Sons (Hudd.), Ltd., 465
General Electric Co., Ltd., Directors' Fifty Years' Service, (13)
Geological Museum, New Rotating Globe, 405
Geophysics, A Perspective of, Sherwin F. Kelly, 288
German Employment Returns, (93)
German Share of South African Trade, 426
Germany, Refugees from, Council for German Jewry Appeal, (733)
Glasgow Royal Infirmary, Memorial Gift, Colvilles, Ltd., (471)
Glasgow Transport, Five-year Plan, (590)
Glass Factory in Mysore, Ogale Glass Works, Ltd., (253)
Glass Fibres, Chance Brothers and Co., Ltd., 385
Globe, New Rotating, at Geological Museum, 405
Globe, Rotating, at Glasgow Exhibition, Henry Hope and Sons, Ltd., 147
Gohin-Poulenc Producer Gas System Fitted to Tractor, British Gazogenes, Ltd., 73

Grab Loader, A Travelling, Benoto, S.A., 544
Grading Machine ("Bullgrader"), Ruston Bucyrus, Ltd., 423
"Grano" Metal for Sugar Mill Rollers, H. W. Aitken Co., Ltd., 354
Grant, Mr. A. J., Elected Master Cutler, (281)
Grass Comb, R. A. Lister and Co., Ltd., 37
Grass Cutter-Collector Machine, Harvest Saver and Implement Co., Ltd., 126
Grass-drying Plant (G. P. Pollitt), 206
Great Lakes Area (U.S.A.) Sewage Disposal, (281)
Green Sand, Lower, Water Bores at Slough, Le Grand, Sutcliff and Gell, Ltd., (25)
Gregory, Sir Richard, Retirement from *Nature*, 579
Grid Frameworks, Relaxation Methods Applied to, D. C. Christopherson, 145
Griffiths, G. J., Retirement from Thames Conservancy, 551
Grinding, Sources of Waste Heat Losses in Fine, L. Andrews, 745
Guild, The Engineers', Aims and Policy, (562), 584
Guild, The Engineers', (Letters), 119, 200, 259, 333, 361, 424, 450

H

HAMMERS, Electro-pneumatic, R. G. Ross and Son, Ltd., 249
Hand Work, Improving the Efficiency of, J. F. Romer, 338; (Letter, 537)
Hard-Surfacing Processes and Materials, M. L. Begeman, 743
Harrow, Self-cleaning, Grass Comb, R. A. Lister and Co., Ltd., 37
Harvesting Tractor, Challenger Streamlined, Massey-Harris, Ltd., 125
Haulage Job, Unusual, in British Columbia, Consolidated Mining and Smelting Co., 392
Heat Exchanger, H. W. Aitken Co., Ltd., 354
Heating, Electrical, The Economics of, 535
Heating Unit, An Air, Keith Blackman, Ltd., 625
Hero of Alexandria, W. J. E. Binnie, 494; (Leading Article, 535)
H-Gear, E. H. Jones (Machine Tools), Ltd., 609
Hoe for Market Gardens, R. A. Lister and Co., Ltd., 37
Holiday Savings, (415)
Holt Bracken Breaker, Harrison, McGregor and Co., Ltd., 98
Holywell, N. Wales, Calcium Carbide Factory Scheme, 137
Hull Industries, (93)
Hurricane Damage in America, H. W. Richardson, (471)
Hydraulic Machinery at Sharpness Docks, The Electrification of, Vickers-Armstrongs, Ltd., 344

HYDRO-ELECTRIC POWER:

Aigle Barrage, France, Power Scheme, 135
Boulder Dam-Los Angeles Transmission Line, (471)
China, North, Hydro-electric Plants in, 574
Colorado River Hydro-electric Project, (253)
Czechoslovakia, Water Power in, (227)
Finland, Hydro-electric Station at Harjavalta, (415)
Formosa Hydro-electric Plant, 442
French Hydro-electric Supply, 29
French Hydro-electric Power Stations, 107
Grand Coulee Power Project, Generators for, (363); Large Turbines Ordered, (733)
Hyderabad Hydro-electric Development Scheme, (281)
Isle Maligne 540,000 H.P. Hydro-electric Station, Canada, 305
Krangedé Hydro-electric Power Scheme, 193, 202, 218, 244
Kuibyshev Hydro-electric Power Station, U.S.S.R., (399)
Noranda Power Project, Quebec, 388
Poulaphouca (Eire) Hydro-electric Scheme, (157)
Ragged Rapids, Canada, Hydro-electric Station, 212
Rand Power Demand, (309)
Swedish Hydro-electric Projects, Expenditure on, (362)
Tube Wells and Electric Development in India, J. M. Lacey, 554
Walterville Hydro-electric Plant, Oregon, Siphons Regulating Water Level, 624
Water Power in Scotland, (673)

Hydro-extractor, "Autolift" Electrically Driven, Watson, Laidlaw and Co., Ltd., 273
Hydro-extractor, Under-driven, Pott, Cassels and Williamson, 355
Hydrogen, Use of, in Quarry and Rock Blasting, F. Merkl, (335)
Hydrogenation Cracking of Tars, (335)

I

ICE, Dry, The Production and Use of, J. Kobold, Masch. Esslingen, 560
"Idaglas" Fibres, Chance Brothers and Co., Ltd., 385
Import Duties Advisory Committee and Pig Iron, (154)
Import Duty, Board of Trade Announcement, (102), (104)
Imports, Chinese, 26
Incentives 69; (Letter 119)
India, Irrigation in, 1933–36, 206
India Store Department Purchases, (617)
India, Tube Wells and Electric Development in, J. M. Lacey, 554
Indian Aluminium Production, (149)
Indicator, A Mechanical-Optical High-speed, S. G. Bauer, 196; (Letters, 316, 392)
Individual Electric Driving, 520, 552, 580, 608, 634, 664, 690
Industrial Development, Scottish, (602)
Industrial Expansion in South Africa, 292, 426
Industrial Initiative, French, 549
Industrial Organisation, Engineering, Lord Dudley Gordon, 654
Industrial Outlook, The French, 749
Industrial Planning, The Problems of, H. Beaver, 511; (Leading Article, 503)
Industrial Position, South African, 655
Industrial Recovery, French Hope of, 187
Industrial Revolution, Lessons of the French, 69
Industrial Situation, A New, in France, 403, 577, 661
Industrial Smoke (Inspector of Alkali's Report), 31
Industrial Subsidies, (149)
Industrial System, A Changing, in France, 517
Industrial Welfare Society, Annual Meeting, 579
Industries, New, in South Africa, 292
Industry, Location of, Royal Commission on, 551
Industry, Personnel in, A. P. M. Fleming, 467; (Leading Article, 473)
Industry, Work and Leisure in, A. P. Young, 83
Inspection Door, A New, D. Adamson and Co., Ltd., 653
Institutions—*see* Associations
Instruments, Control, for Steel Mills in U.S.A., 346
Instruments, Engineering, C. C. Mason, 329
Insulating Material, Reflective Thermal, "Silvercote," International Engineering Concessionnaires, Ltd., (78)
Insulation for the World's Largest Telescope at Mount Palomar, California, (149)
International Acetylene Congress, 1939, (22)
International Electrotechnical Commission, Guildhall Banquet, (41)
International Engineering Congress, Glasgow, 4, 16, 50, 77; Attendance Figures, (563); Transactions, (546)
Invention, Sir J. Swinburne, 589
Involute Gear Modification, F. Whiteley, 523
Iran, New Oilfields in, Anglo-Iranian Oil Co., Ltd., (13)
Iraq Oil Concession, (149)

IRON AND STEEL:

"Adamite," Chilled Grain, and Steel Rolls, R. B. Tennent, Ltd., 115
Algoma Steel Corporation, Ontario, Steel Plant Extensions, 212
American Iron Ore Output, (201)
American Iron and Steel Developments, 571
American Steel Research Laboratory, Jones and Laughlin, 572
American Steel Statistics, (309)
Australia, Iron Ore in, (443)
Bauxite as an Iron Ore, (443)
Blast-furnaces in the North-East, (149)
Boron, Determination of, in Iron and Steel, J. L. Hague and H. A. Bright, (335)
British Cast Iron Research Association, Annual Meeting, 663
Cape Town Steel Works, Proposed, 545
Cast Iron Straight-edges, 47
Cast Irons, High-duty (I. Mech. E. Research Committee Report), 695
Castings, Relief of Internal Stress in, L. E. Benson and H. Allison, 23
Chesterfield Tube Co., Ltd., Works Extension, 672
Cold-roll Forming of Strip Steel, 160
Compound Steel Rails, (389)
Continuous Strip Mills, The Development of, D. Eppelsheimer, 502, 513
Control Instruments for Steel Mills in U.S.A., 346
Corby Iron and Steel Works, Model, Stewarts and Lloyds, Ltd., 386
Ebbw Vale, Richard Thomas and Co., Ltd., and, 31
Embrittlement of Boiler Steel, 400
European Steel Works, Electric Furnaces in, D. F. Campbell, 504
Ferrous Metals, 238
French Iron and Steel Trade Difficulties, 29
French Steel Production, Armaments and, 429
Glasgow, Empire Exhibition, Iron and Steel Hall, 174; Steel Industry, Scotland, Pavilion, 468
Indian Iron and Steel Production, (335)
Iranian Iron and Steel Works, (363)
Iron Mine Exhibit at Swedish Technical Museum, (701)
Iron Ore in Argentina, (201)
Iron Ore Field near Wolmaransstad, Transvaal, 426
Iron and Steel, The Stocks of, 243
Iron and Steel Works Developments, A Review of, D. E. Roberts (I. Mech. E., Presidential Address), 463
Ironfounding in England, Rhys Jenkins, 599
"Iscor" Appointment, Mr. G. A. Jenkin, 52; Dismissal of Employees, 655; Dr. van der Bijl Reappointed, 292; Steel Production in South Africa, 711
Jarrow Tube Works, (227), 490
Jugoslavian Iron and Steel, (201)
"Loded" Cast Irons, H. J. Young, (673)
Newcastle-on-Tyne Railway Junction, "Era" Manganese Steel, Hadfields, Ltd., 571
Nickel Cast Iron for Tar Distillation Stills, Mond Nickel Co., Ltd., 129
Pickling Acid Recovery Plant, Kestner Evaporator and Engineering Co., Ltd., 508
Pickle Liquor, New Use for, Sharon Steel Corporation, (285), (389)
Pig Iron, Duty on, (154)
Rhodesia Prohibits Scrap Iron Export, 656
Rolling Mill and Furnace Equipment, Electric, Ben. Bennett, jun., Ltd., 206
Scrap, Cutting-up, in Large Yards, Colorado Fuel and Iron Corporation, (201)
Sheet and Tin-plate, Continuous Rolling of, J. Malborn, (224)
South African Iron and Steel Industrial Corporation, Appointment of Mr. G. A. Jenkin, 52; Dismissal of Employees, 655; Dr. van der Bijl Reappointed, 292; Steel Production, 711
Specific-Heat/Temperature Curves, C. Sykes and H. Evans, 505
"Staybrite" Stainless Steel Motor Lifeboat, Mechans, Ltd., 250
Steel Casting Research, I. & S. Inst. Report, 525

IRON AND STEEL (*continued*):

Steel Dumping, American, in South Africa, 426
Steel Export Trade, 445
Steel Makers' Price Policy, 15
Steel Pipe Works, American Seamless, Youngstown Sheet and Tube Co., 198
Steel Prices, The New, 675
Steel Production in South Africa, "Iscor," 711
Steel Research in U.S.A., (389)
Steel Trade Statistics, (443)
Swedish Iron and Steel Industry, (309)
Transport of Iron and Steel, Railways and the, A. C. W. Impey, (41)
Transvaal Iron Ore Deposits, (335)
Waste Pickling Acid Utilisation ("Ferron"), (285), (389)
Welding Steel to Cast Iron, Barimar, Ltd., (78)

Irrigation in India, 1933–36, 206
Irrigation Plans in South Africa, 545
Irrigation Schemes, Italian, (253)
Irrigation Survey in Canada, (617)
Irrigation Systems, Old, in Central Asia, (533)
Italian Irrigation Schemes, (253)
"It's my Own Invention," 95

J

JARROW Industries, New, (363), 490
Jarrow Metal Works, 490
Jarrow Tube Works, (227), 490
Joint Committee on Materials and their Testing, 78
Jointing Box Compound, W. C. Barry, (563)
Joints, Cane Fibre Expansion "Flexcell," Celotex, Ltd., (67)
Joints, Pipe, Stewarts and Lloyds, Ltd., 386

K

KEEWATIN, Ontario, Wharf Construction at, R. F. Legget, 302
Kestner-Fakler Pickling Acid Recovery Plant, Kestner Evaporator and Engineering Co., Ltd., 508
Kitsons of Leeds, 1837–1937, E. Kitson Clark, 124; (Correction, 152); (Letter, 174)
Klonne Welded Waterless Gasholder for Ford Motor Co., Horseley Bridge and Thomas Piggott, Ltd., 127
Krupp Treibstoff Process of Low-temperature Carbonisation, (415)

L

LABORATORIES, Tin Research, at Greenford, (174)
Laboratory, Admiralty Metallurgical, at Sheffield, 689, 706
Labour Discipline, French, 457
Labour, Machinery and, 403
Labour, The Movement of, 325
Labour, Skilled, Watches and (Astronomer Royal's Report), 43
Labour Union Agitation, French, 295
Laminated Material, Wood-faced, Bakelite, Ltd., 742
Lamps and Eyes, A. D. S. Atkinson, 77
Lancashire's Transport Problem, 31
Language, Concepts and, of Electrical Engineering, G. W. O. Howe, 262; (Leading Article, 255)
Laundry, An Experimental, British Launderers' Research Association, 633
Laundry Presses, "Imperial" Pneumatic, D. and J. Tullis, Ltd., 305
Laystall Engineering Co., Merger with Joshua Bigwood and Son, Ltd., (227)

LEADING ARTICLES:

Air Raids, Engineers and, 503; (Letter, 538)
Armaments, Economy in the Production of, 735
Battleships, Larger, 43
Boiler Mishap, An Interesting (Ilford, Essex), 177
"Buried City," The (Report on Underground Planning), 283
Castlecary Railway Accident, 15
Centenary, A Great (London–Birmingham Railway), 337
Centrifugal Pump and its Model, 473; (Letter, 500)
Chance and the Engineer, 365
Coal at Sea, 151
Cutting Fluids, 446
Derailments (South African Tests), 593
Electrical Accidents in Coal Mines, 311
Electrical Heating, The Economics of, 535
"Engineer," The Definition of an, 417
Engineering and Democracy, 535
Engineers and National Fitness, 337
Engineers and the Peace of the World, 391; (Letter, 450)
Engineers, The Upbringing of, 473; (Letter, 537)
Engineers and World Politics, 417
Exhibitions and Foreign Trade, 15
Factories, The Output of, 311
Flying Fury, 203
French Industrial Revolution, Lessons of the, 69
French Three Years' Plan, 593
Incentives, 69; (Letter, 119)
Industrial Planning, 503
"It's My Own Invention," 95
Kingston Electricity Failure, 703
Locomotive Chimneys, 123
London-Birmingham Railway ("A Great Centenary"), 337
"Meal Monday," The Moral of, 647; (Letters, 700, 731)

LEADING ARTICLES (*continued*):

National Council of Engineers, 95; (Letter, 119)
Non-destructive Testing, 619
Non-ferrous Metal Markets, 229
On Sacking Yourself, 255
Patent Office Tragedy, 365
Physics, Modern, and the Engineer, 229
Production and Efficiency, 647
Railway Accidents in 1937, 177
Railway Axle Wheel Seat Failures (Rutherglen Accident Report), 203; (Letter, 226)
Railways, High Speeds on, 44
Right Man, Choosing the 391
Road and Rail Again, 619
Road Scheme, County Surveyors', 151
Road Vehicles, Fuel for, 703
Roads Again (Sir C. Bressey's Presidential Address, Junior Institution), 675
Science, Modern, and its Responsibilities, 204
Seaplanes and the Atlantic Crossing, 123
Social Relations of Science, 230
Steel Export Trade, 445
Steel Makers' Price Policy, 15
Steel Prices, The New, 675
Strike, An Inexcusable (L.M.S. Railway), 445
Terminology, Scientific and Technical, 255
Textbooks, 365; (Letter, 538)
Trades Union, What is a? 70
Transport, World, 565
Underground Water, 70
Watches and Skilled Labour, 43
Water Control in China, 283
Words and the Engineer, 735
X-ray Analysis and the Properties of Materials, 565

Leipzig Port, Proposed, (13)
Leisure in Industry, Work and, A. P. Young, 83
Lens Making, Refrigeration in, Kodak, Ltd., (563)

LETTERS TO THE EDITOR:

Air Raids, Engineers and, R. Hammond, 538
Aircraft Carriers, "G. U. N. S.," 450
"Buzz Box" Power Units, S. P. Christie, 9
Civil and Military Training, Combined, for Engineers, "T. W. B.," 559
Defensive Rearmament Production, J. Holloway, 450
Engineers' Guild, R. Chalmers, 200, 333, 424; A. W. Crampton, 119, 259, 361, 450
Engineers and the Peace of the World, R. Chalmers, 450
Engineers and the State, A. Gheselayagh, 145; R. A. Joseph, 174
Evolution of Physics, D. C. Miller, 613
Foreign Trade, Why? "M.I. Mech. E.," 672; R. Vincent, 699
Gear Tooth Deflection, W. Sellar and E. McEwen, 500
Grid and the Oil Engine Industry, H. Campbell, 474; H. J. Gibbons, 644
Grid and the Papermaker, D.T. MacIvor, 672
Hand Work and Industrial Psychology, F. L. Meyenberg, 537
Incentives, H. T. Hildage, 119
Indicators, High-speed, T. Robson, 316
La Mont Boiler, B. W. Thornton, 424
Machine Tool Castings, A. Kershaw, 119
Magnetic Quality, The Control of, by Surface Treatment, A. Kussmann and T. F. Wall, 474; A. G. Warren, 731
Mechanical Optical High-speed Indicator, J. J. Guest, 392
Moral of Meal Monday, R. Nunn May, 700; E. F. J. Plowden, 731
National Council of Engineering, A. W. Crampton, 119; R. Chalmers, 200
Oil Drilling in Great Britain, G. T. Pardoe, 259
Oil Engine, The First, J. A. Walker, 316
Parsons' Rotating Cylinder Steam Engine, E. E. B. Mackintosh, 174
Precombustion Ignition Coal Oil Engine, R. G. Bellamy, 39, 70; J. R. Kingston, 70
Pump Efficiency Figures, "Pump User," 500
Railway Axle Wheel Seat Failures, K. H. Johnston, 226
Spinning Card, "Curious," 226; "Querist," 174; C. Salter, 200
Railway Wheels, P. C. Dewhurst, 9
Text-books, R. W. Angus, 538
Upbringing of Engineers, S. B. Fletcher, 537
Vacational Training, "Old Student," 672

Level, A Universal Spirit, P. Philipp, 343
Lift, Burgenstock-Hammetschwand, Schindler and Co., 542
Lighthouse, A New, at Ouessant, (253)
Lighting in Factories, 607
Lighting Regulations of the Factory Act, (281)
Lighting, Street, J. F. Colquhoun, 290
Liquid Formation on Tin-plates, P. Rocquet, (591)

LITERATURE (see also Technical Reports):

Reviews:

Bridge Design, Reinforced Concrete, C. S. Chettoe and H. C. Adams, 124
Brunels, Father and Son, Celia Brunel Noble, 567
de Vauban, Sebastien le Prestre, 1633–1707, Sir R. Blomfield, 96
Electric Power Circuits, O. G. C. Dahl, 506
Fluid Mechanics for Hydraulic Engineers, H. Rouse, 566
Foremanship and Supervision, F. Cushman, 676
Furnace Technology, Modern, H. Etherington, 649
Gear-cutting Practice, F. H. Colvin and F. A. Stanley, 204
Grinding Practice, F. H. Colvin and F. A. Stanley, 312
Heating, Ventilating and Air-conditioning Fundamentals, W. H. Severns, 152
J. & P. Switchgear Book, R. T. Lyall, 704
Kitsons of Leeds, 1837–1937, E. Kitson Clark, 124; (Correction, 152) (Letter, 174)
Lubricating Greases: Their Manufacture and Use, E. N. Klemgard, 17
Machine Members, Design of, A. Vallance, 447
Management, The New, H. T. Hildage, T. G. Marple, and F. L. Meyenberg, 45

LITERATURE (*continued*):

Reviews (*continued*):

Physics, The Evolution of. A. Einstein and L. Infeld, 418; (Letter, 613)
Plastics Industry, Processes and Machinery in the, K. Brandenburger, 676
Production Organisation, The Science of, E. H. Anderson and G. T. Schwenning, 704
Provvista e Distribuzione di Aqua Potabile, C. Mistrangelo, 447
Rational Industrial Management, The Principles of, J. J. Gillespie, 152
Reinforced Concrete Piling, F. E. Wentworth-Sheilds and W. S. Gray, 284
Smeaton, John, Diary of His Journey to the Low Countries, 1755, 96
Switchgear Handbook, W. A. Coates and H. Pearce, 704
Torsional Vibration in Diesel Engines, C. H. Bradbury, 392

Short Notices:

Aerodromes: Their Location, Operation, and Design, 649
Aluminium, D. B. Hobbs, 731
Blackstone and Co., Ltd., A Hundred Years of Progress, (613)
British Chemical Industry: Its Rise and Development, G. T. Morgan and D. D. Pratt, 541
Buildings, Construction of, in London, 541
Cable Jointing, Practical, W. T. Henley's Telegraph Works Co., Ltd., 312
Cane Sugar Manufacture, The Principles of, J. G. Davies, 567
Electricity Supply, Costs and Tariffs in, D. J. Bolton, 205
Kent's Mechanical Engineers' Handbook, 205
Motor Fuel Preparation and Application, Principles of, A. W. Nash and D. A. Howes, 541
Motor Vehicle, The, K. Newton and W. Steeds, 567
Pocket Book for Mechanical Engineers, D. A. Low, 731
Steam Generators, W. Rudorff, 731
String Lining of Railway Curves, P. E. Knight, 541
Thorpe's Dictionary of Applied Chemistry, Vol. II, 541
Van Nostrand's Scientific Encyclopædia, 45
Workshop Calculations, Applied, W. A. J. Chapman, 567
Workshop Calculations, Tables and Formulæ, F. J. Camm, 731

Books Received:

17, 45, 70, 96, 205, 257, 312, 339, 423, 447, 470, 541, 567, 616, 649, 676, 736

Books of Reference:

Colliery Year Book and Coal Trades Directory, 47
Kelly's Directory of the Engineering, Hardware, Metals and Motor Trades, 1938, 470
Kelly's Directory of Merchants, Manufacturers and Shippers of the World, 47
Oil and Petroleum Year Book, 1938, 47
Railway and Commercial Gazetteer, 226
Railway Officials and Railway Year Book, 1938–39, Universal Directory of, 47
South African Mining Year Book, 1938–39, 658

Lithium, Uses of, (563)
Loader, A Travelling Grab, Benoto S.A., 544
Loading from a Rock Dump by Scraping, Holman Brothers, Ltd., 261
Location of Industry, Royal Commission on, 551
Locator, Staff, Electrical, Gent and Co., Ltd., 182
Lockyer, Norman, Observatory, Sidmouth, (92)
Locomotives—*see* Railways
Logic and Probability in Physics, C. G. Darwin, 237; (Leading Article, 229)
London Balloon Barrage, 269
London Building Acts, Amendment of the, 83
London and Cambridge Economic Service, Memorandum on the Output of Factories, 311
London County Council School of Engineering and Navigation, Extensions, (121)
London Main Drainage, (563)

LONDON PASSENGER TRANSPORT BOARD

Aldgate East Station, The New, 489
Annual Report, 489
Central London Railway Extension, (309), 519
Charing Cross (District Line) Accident Report, 325
Fares, (591)
Marylebone Station Improvements, Bakerloo Line, (363)
Metadyne Applied to Electric Traction, Metropolitan-Vickers Electrical Co., Ltd., 538
Metropolitan Line Change-over between Swiss Cottage and Neasden, (344)
Moorgate Joint Station, 380
Neasden Bridge Widening, Cleveland Bridge and Engineering Co., Ltd., 339
Northern Line, Strand Station, Derailment, (591)
Railway Extensions in the London Area, Cost of, (121)
Railway Staff Census, (363)
Switch, Novel Motor Control, (253)
Underground Railway Improvements, 189
Underground Railways, Automatic Telephones for, (121)
Underground Rolling Stock, New, (13), (67)
Underground Traffic Control, 83
Uxbridge Station, The New, 607
Ventilation of London's Tubes, (212)
Waterloo and City Railway Improvements, (533), (645)
Waterloo, Northern Line, Collision Report, 36

"Long View" in China, The, 574
Loosening Device for Screws, Horstmann, Ltd., 20
Low Temperature Carbonisation, Krupp Treibstoff Process, (415)

M

MACHINE TOOLS:

American Machine Tool Emergencies, 362
Boring and Facing Machine, A Large, G. Richards and Co., Ltd., 208
Boring Machine for Crank Cases, Associated Equipment Co., Ltd., 680
Boring and Milling Machine, William Asquith, Ltd., 666
Boring and Milling Machine, 10in. Horizontal Spindle, G. and A. Harvey, Ltd., 596
Castings, Machine Tool, The Modern Manufacture of, J. Blakiston, 102; (Letter, 119)
Cutters, Rotary Milling ("Titegrip"), F. Gilman (B.S.T.), Ltd., 569
Cutting Fluids, The Functions of, H. W. Swift, 441; (Leading Article, 446)
Cutting Fluids and the Machine Tool, A. H. Lloyd and H. H. Beeny, 420
Cylinder Boring Machine, Twelve-spindle, Associated Equipment Co., Ltd., 697
Demonstration Van, Machine Tool, Burton, Griffiths and Co., Ltd., 708
Drilling Machine, Unit Head, A. A. Jones and Shipman, Ltd., 581
Drilling Machines, Electrically Driven, 521
Driving, Individual Electric, for Machine Tools, 520, 552, 580, 608, 634, 664, 690
Electric Machine Tools, 160
Grinding Machine, Vertical, at Ferguson-Brown Tractor Works, Lumsden Machine Tool Co., Ltd., 730
Grinding Machines, Matrix Thread, Ward Leonard Controlled, Coventry Gauge and Tool Co., Ltd., 666
Guillotine Shearing Machine, "Keetona," T. W. Ward, Ltd., 387
"Hiloplane" Planing Machines, John Stirk and Sons, Ltd., 691
Involute Gear Modification, F. Whiteley, 523
Lathe with A.C. and D.C. Motors, J. Lang and Sons, Ltd., 665
Lathe Bed, Hardened, Monarch Machine Tool Co., (673)
Lathe, Capstan 4SE, Alfred Herbert, Ltd., 520
Lathe Centres, Rotating "Procedo," F. H. Ockenfels, 261
Lathe, Chasing, No. 2S, Capstan, Alfred Herbert, Ltd., 451
Lathe, A 230-Ton, Craven Brothers (Manchester), Ltd., 370
Lathe, Double-ended Shafting and Turbine, Craven Brothers (Manchester), Ltd., 531
Lathe with Motor for Quick Traverse, G. and A. Harvey, Ltd., 581
Lathe, Multi-tool, with Three-speed Motor, B.S.A. Tools, Ltd., 665
Lathe, "Triumph" Sliding, Surfacing and Screw-cutting, T. W. Ward, Ltd., 386
Lathes, High-speed, All-geared "Volman," Selson Machine Tool Co., Ltd., 507
Milling Machine, Traversing Head Line, at A.E.C. Works, James Archdale and Co., Ltd., 697
Milling Machines, Vertical and Horizontal, Soag Machine Tools, Ltd., 234
Multi-milling Machine, E. H. Jones (Machine Tools), Ltd., 182
Planer Drive, Lancashire Dynamo and Crypto, Ltd., 690
Plano-milling Machine, Heavy-duty, Kendal and Gent (1920), Ltd., 692
Plate Bending Rolls, Large, Joshua Bigwood and Son, Ltd., 372
Profile Milling Machine, John Holroyd and Co., Ltd., 665
Radial Drilling Machine, J. Archdale and Co., Ltd., 581
Reamers, New Expansion, A. C. Wickman, Ltd., 208
Rifling Machine for Gun Barrels, John Holroyd and Co., Ltd., 665
Shaping Machines, Heavy-duty, Churchill-Redman, Ltd., 653
Shaping and Preparing Machine for Timber Lock Gates, T. Robinson and Son, Ltd., 180
Shearing Machines, Sheet Metal ("Pullomax"), Hancock and Co. (Engineers), Ltd., 598
Slotting Machine, Swivel Ram, Ormerod Shapers, Ltd., 653
Slotting Machine, Ward Leonard Controlled, John Holroyd and Co., Ltd., 665
Spindle Milling Machine, G. and A. Harvey, Ltd., 581
Tapping Machine, High-speed, Alfred Herbert, Ltd., 290
Tapping Machine, Unit Head, A. A. Jones and Shipman, Ltd., 581
Twist Drills, The Cutting Angle of, G. Schlesinger, 650
Utility Head, Alfred Herbert, Ltd., 290
Woodworking Machinery, Double-end Tenoning Machine, Cross-cutting and Trenching Machine, Band Saw, T. Robinson and Son, Ltd., 562
Woodworking Machines, Individual Electrically Driven, Wadkin and Co., Ltd., 552

Machinery and Labour, 403
Magnetic Measurements with Special Reference to Incremental Conditions, 307
Magnetic Quality, The Control of, by Surface Treatment, 474, 731
Mahoganies, Commercial, B. J. Rendle, 36
Management Education, Works, T. H. Burnham, 158, 183
Manchester College of Technology, Dr. J. Eckersley Appointed Principal, 83
Manchester Tramcars, Proposed Replacement by Trolleybuses, (253), (309)
Manganese, A. W. Groves, 546
Manganese and Asbestos Discovered in New Zealand, (443)
Manganese Export Checked in South Africa, 184
Manganese Industry Setback, South African Manganese, Ltd., 656
Manganese, Metallic, from Low-grade Ores, (389)

MAPS:

Aerial Maps of South Africa, 545
Burma–Yunnan Road and Railway, 692, 693, 725

MAPS (*continued*):

China, Waterways in, 278
Durban's Sewerage Scheme, 90
Fredericton, N.B., Wharf Wall, Location Map, 302
Génissiat Dam, River Rhône, 722
Karachi Water Supply, Situation of Wells, 589
Keewatin, Ontario, Wharf Reconstruction, Location Map, 303
Krangede Hydro-electric Power Scheme, 193
London Television Service Area, 527
Marine Parkway Bridge, New York, 406
Nene, River, Improvement Works, 641
Paris Suburban Sewerage Works, 436
Port Hope, Ontario, Location Map, 302
Shasta Dam, California, Sacramento and San Joaquin Rivers, 677
Southern Railway, Littlehampton and Bognor Regis Electrification, 7
Ward's Island Sewage Works, New York, 555, 556

Marconi Company, Retirement of, P. W. Paget and C. Rickard, (149)
Markets, Notes and News—*Weekly*
Marseilles Dock Strike, 215, 267, 295, 323, 349
"Marshall" Roots Blowers and Exhausters for Industrial Application, Sir George Godfrey and Partners, Ltd., 614
"Mastoker" Underfeed Automatic Stoker, Prior Burners, Ltd., 413
Materials, The Molecular Basis of the Strength of, Sir W. Bragg, 572; (Leading Article, 565)
Materials and their Testing, Joint Committee on, 78
"Meal Monday," The Moral of, 647; (Letters, 700, 731)
Mechanical-Optical High-speed Indicator, S. G. Bauer, 196; (Letters, 316, 392)
Metal Consumption, World's Base, (41)
Metal, Electro-deposition of, Fescol, Ltd., 477
Metal Markets, Non-ferrous, 229
Metal, Non-slip Safety, (227)
Metal Spraying, A New Method of, Schori Metallising Process, Ltd., 318
Metal Treatment Process, International Corrodeless Co., 89
Metallic Manganese from Low-grade Ores, (389)
Metallurgical Laboratory, Admiralty, at Sheffield, 689, 706
The Metallurgist—*see* INDEX, page xix
Metals, Ferrous, 238
Meter, "Uni-Meter" Coal, Lea Recorder Co., Ltd., 413
Meters, Viscous Flow Air, Ricardo and Co., Engineers (1927), Ltd., 743
Microscope, Improved Toolmakers', Alfred Herbert, Ltd., 477
Mill, Air-swept Tube, for Pulverising Coal, Sheepbridge Coal and Iron Co., Ltd., 87
Mill, 8in. Double Duo Rolling, Brightside Foundry and Engineering Co., Ltd., 22
Milling Cutters, Rotary ("Titegrip"), F. Gilman (B.S.T.), Ltd., 569
Mineral Production in South Africa, (290)
Mineral Resources, South African, 52
Mineral Wealth of South Africa, 292

MINES:

Accidents in Mines, 311, (415), (673)
American Coal Mine Blasting, 264
Bauxite Mine, British Guiana, Aluminium Union, Ltd., 305
British Mines and Quarries Output, (617)
Broken Hill Silver Lead Mines, (335)
Chinese Coal and Iron Mines, 104
Coal Mining Statistics, British, (281)
Controller for Mine Tubs, J. and J. Neil (Temple), Ltd., 440
Copper Mines at Otavi, S.W. Africa, 52
Dortmund Experimental Mine, 636
Dry Mining Methods in South Africa, E. C. Ranson, 52
Electrical Accidents in Coal Mines, 311
Electricity in Mines, Annual Report, 269
Electricity in Mines, J. Jones, (451)
French Collieries, Requisition of, 429
French Miners' Agreement, 323
German Machine Mining Statistics, (389)
Glasgow, Empire Exhibition, Model Coal Mine, 172
Iron Mine Exhibit at Swedish Technical Museum, (701)
Lead Mine at Blaauwberg, South Africa, 292
Markham Colliery Disaster Report, 459
Mechanisation in Mines, (67), 109
Metalliferous Mines and Quarries Report, (471)
Mine Dusts, The Analysis of, (591)
Mines Department Reports, 459
Mining Research Laboratory, Report on Work, 719
Pickerstonhill, New Coal Mine in Scotland, (227)
Pit Heap Fires, (201), 633
Pit Timber from Canada, (335)
Pithead Baths, (563)
Rope Haulage in American Zinc Mines, (210)
Safety in Coal Mines, Royal Commission's Report, 689
Safety in Mines, Annual Report, 269
Swedish Iron Ore Mines, Proposed Purchase of, by Germany, (227)
Transportation of Coal at Strip Mines, 559
Winding Plant, A.C., at Pinxton Colliery, Metropolitan-Vickers Electrical Co., Ltd., 88

Ministry of Labour, Employment Returns, 31, 165, 269, 379, 519, 633
Mississippi River, Asphalt Mattress Bank Revetment, 130, 400
Mississippi River, Straightening, 742
Models, Scale, The Use of, in Engineering, R. W. Allen, 246; (Leading Article, 473)
Modes of Vibration of Structures, Determining Natural, H. C. Hayes and E. Klein, 682
Moisture in Wood, D.S.I.R. Report, (363)
Molecular Basis of the Strength of Materials, Sir W. Bragg, 572; (Leading Article, 565)
Morris, Professor J. T. MacGregor, Retirement from Queen Mary College, 31

MOTOR CARS:

Aluminium Alloy Lorry Body, Northern Aluminium Co., Ltd., 156

MOTOR CARS (*continued*):

American Motor Vehicle Registrations, (13)
Automobile Association's Annual Meeting, (121)
Automobile Development, P. C. Kidner, 379
Automobile Research (Inst. A.E. Report), 351, (701)
Bouton, Georges, Motor Car Pioneer, 549
British Motor Car Production, (363)
Cobb, John, Land Speed Record, (309), (335)
Decarbonising Engines, New Method, Ford Motor Co., Ltd., (733)
Eyston, G. E. T., Land Speed Record, (13), (253), (335)
Forest Gas for Traction, 230
French National Motor Fuels, 55
Front Wheel Suspension Unit, Armstrong's Patents Co., Ltd., 449
Fuel for Road Vehicles, 703
Gas Generator Road Vehicles in U.S.S.R., (363), (733)
Gas Producer, The Modern Portable, H. Goldman and N. C. Jones, 712, 740; (Leading Article, 703)
Gears, Spiral Bevel Rear Axle, David Brown and Sons (Hudd.), Ltd., 465
G.W. Railway, School for Road Motor Drivers, (149)
Lorry, Large Dumping, 180 H.P., at Los Angeles, (471)
Machine Tool Demonstration Van, Burton, Griffiths and Co., Ltd., 708
Mercedes-Benz Cross-country "Hunting and Pursuit" Car, 448
Morris "M" Ten-Four, Morris Motors, Ltd., 449
Motor Car Exports, (13), (126)
Motor Car Exports to the Empire, (509)
Motor Car Fleet for Czechoslovakia, Vauxhall Motors, Ltd., (415)
Motor Industry of Great Britain, 1937 (S.M.M.T. Review), 31
Motor Roads Scheme, Proposed, (149)
Motor Show at Earls Court, (392), 448, 464, 498
Motor Vehicle Statistics, World, (277)
Mudguards, Rubber, for Buses, (617)
Paris Motor Car Show, 440
Paint and Plastics in the Motor Car Industry, (227)
Petrol-Electric Buses, Rapid Transit Co., Philadelphia, 320
Producer Gas Driven Bus, (201)
Producer Gas for Vehicles and Ships, Committee on, 519, (563)
Railway Wagons for Carriage of Motor Cars, (673)
Red Rear Reflectors on Motor Vehicles, (443)
Riley Motors (Coventry), Ltd., Purchased by Lord Nuffield, (309)
Shock Absorber Unit, Armstrong's Patents Co., Ltd., 449
Speed Records, (335)
Torque Converter for Motor Cars, F. C. Lea, 276
Tractor with Gohin-Poulenc Producer Gas System, British Gazogenes, Ltd., 73
Tractor Running on Producer Gas, Latil Industrial Vehicles, Ltd., 72
Vauxhall Developments at the Motor Show, 464
Vehicle Registrations, Ministry of Transport, (93), (201)

Moulding Machine, Sandslinger, Foundry Plant and Machinery, Ltd., 250
Mowat, Brig.-General Magnus, Retirement from I. Mech. E., (645)
Mudguards, Rubber, for Buses, (617)
Munition Works, Inspection of, (93)
Museums, National, 325
Mysore Glass Factory, Ogale Glass Works, Ltd., (253)

N

NATHAN, Sir Matthew, Governor of Hong Kong, 104
National Council of Engineers, 95; (Letters, 119, 200, 259, 333, 361, 424, 450)
National Emergency, Road Goods Transport and, 351
National Fitness, Engineers and, 337
National Physical Laboratory, Annual Inspection, 21; Dr. C. G. Darwin Appointed Director, 405
Nationalised Production, Effect of, in France, 163
Natural Gas Conservation in Alberta, (389)
Nene, River, Improvement Works, W. and C. French, Ltd., and Dredging and Construction Co., Ltd., 641, 646; (Correction, 684)
New York, Ward's Island Sewage Works, 555; (Sludge Vessels, 586)
New Zealand Search for Oil, (149), (545)
Nickel Development, International Nickel Co. of Canada, Ltd., 709
Nickel Silver, T. F. Pearson, (13), 36
Nile Flood, The, F. Newhouse, 243, (281), 304
Noise Measurements Aboard Ship, H. A. Simms, 345
Noise Reduction in Ships, R. S. Robinson, 568
Non-destructive Testing, General Discussion, 451, 620, 626; (Leading Article, 619)
Non-destructive Testing in Germany, R. Berthold, (617)
Non-ferrous Metal Markets, 229
Non-slip Safety Metal, (227)
Northern Ireland Transport, 607, (617)
Norwich, Synchronous Electric Tower Clock at, Gillett and Johnston, Ltd., 251

O

OBITUARY:

Ahearn, Hon. Thomas, 1
Barclay, W. R., 339
Barfield, A. E., (337)
Barford, V. G., (334)
Barnwell, Captain F. S., 152

OBITUARY (*continued*):
Belliss, John, 566
Booth, Charles, (673)
Bouton, Georges, 549
Brackenbury, H. I., 339
Brownlie, J. T., 447
Callender, Sir T. O., 649 (Portrait)
Carpenter, Dr. Charles, 314
Dawson, Sir Philip, 366 (Portrait)
Delaney, S., (442)
Dunlop, Major R. J., (309)
Evans, E., (281)
Ferguson, John, 505
Follows, J. H., (673)
Fowler, Sir Henry, 446 (Portrait)
Gresham, S. T., 96
Griffith, Sir J. Purser, 475 (Portrait)
Hay, David, 506
Humphries, Sir Herbert, 45
Hutchinson, A., (253)
Jones, Sir W. J., 447
Kent, Sir Walter, (565), 598
Levenger, M., 705
Lynde, G. G., 152
Maginness, E. J., (733)
Marks, Lord, 366 (Portrait)
Merrett, Professor W. H., 505
Mond, Sir Robert, 459
Mordey, W. M., 44 (Portrait)
Mott, Sir Basil, 313 (Portrait)
Newlands, Alexander, 257
Noal, F. W., (591)
Price, A. G., Obituary, (671)
Price, T. L., 506
Pringle, Sir John, 96
Saklatvala, Sir Nowroji, 109
Sanders, Sir Charles, 314
Scott, W. Harding, 284 (Portrait)
Scrutton, J. H., (41)
Snell, Sir John, 71 (Portrait)
Stewart, Major-General J. W., 367
Townsend, Sir Reginald, 505
Tree, R. H., 284
van Eendenburg, D. C. F., (374)
Ward, W. A., (574)
Whitehouse, Sir George, (591)
Wilkinson, G. B., (253)

Observatory, The Norman Lockyer, at Sidmouth, (92)
Oil in Australia, (673)
Oil and Bearing Testing Machine, "Admiralty" Pattern, Sir W. H. Bailey and Co., Ltd., 209
Oil Boring at Dalkeith, Increased, (227)
Oil Burner, Automatic, Clyde Fuel Systems, Ltd., 6
Oil Burner Manufacturers' Association, British, 12
Oil, Coal and, Research, 325
Oil Concession, New Iraq, (149)
Oil Drilling in Britain, G. Dott, 169, 191, 220; (Letter, 259)
Oil Drilling in Great Britain, G. W. Lepper, 519
Oil Extractor, Centrifugal, Watson, Laidlaw and Co., Ltd., 273
Oil Find at Dalkeith, Scotland, Anglo-American Oil Co., (10)
Oil, Fuel, Production of, in South Africa, 426
Oil Pipe Line, Long, in France, (175)
Oil Project near Sydney, Australia, (253)
Oil Prospecting in New Zealand, (149), (545)
Oil Search near Broseley, Shropshire, Abandoned, (701)
Oil Well, The Deepest, in San Joaquin Valley, California, (471)
Oil Well Drilling, Notable, in California, 400
Oil Well, Fight with an, in Vermilion Bay, America, W. F. Chisholm, 532, 534
Oilfields, New, in Iran, Anglo-Iranian Oil Co., Ltd., (13)
On Sacking Yourself, 255
Operator, Automatic, for Water Gas Plants, Henry Balfour and Co., Ltd., 285
Ordnance Survey, Final Report of Committee, 519
Ore Conveyor Belt Lighting in South Africa, General Electric Co., Ltd., 235
Organisation, Engineering Industrial, Lord Dudley Gordon, 654
Osaka Port Works, (733)
Oshawa, Ontario, Wharf Construction at, R. F. Legget, 301
Outlook, The Changing, of Engineering Science, R. V. Southwell, 194; (Leading Article, 230)
Output of Factories, 311
Oven, Coke, Equipment at West Hartlepool, Gibbons Brothers, Ltd., 86, 94, 113, 122
Oxidation Resistance in Copper Alloys, L. E. Price and G. J. Thomas, 537

P

"PANOHMER" Instrument for Sugar Machinery, Mirrlees Watson Co., Ltd., 355
Paper Mill at Durban, National Pulp and Paper Co., Ltd., 292
Paper Pulp Factory at George, South Africa, 52
Paper from Waste Wood, H. R. Petersen, R. J. Hart, and T. L. Crossley, (93)
Papermaker, The Grid and the, L. N. Burt 651: (Letter, 672)
Paris Passenger Transports, Unifying, 605
Paris Suburban Sewerage Works, 436
Parliamentary Science Committee, Annual Meeting, (701)
Patent Office Tragedy, 365

PATENT SPECIFICATIONS, BRITISH:
Aeronautics, 29, 164, 188, 241, 749
Building, 631
Cranes and Conveyors, 188
Dynamos and Motors, 163, 215, 349, 377, 487, 517, 549, 661, 687
Electrical Appliances, 81, 323, 349
Furnaces, 29, 107, 135, 323, 350, 517, 749
Gas Producers, 749
Internal Combustion Engines 163, 215, 295, 323, 349, 377, 577, 687
Lighting and Heating, 108, 136
Locomotives, 135
Machine Tools and Shop Appliances, 267, 323, 549, 749

PATENT SPECIFICATIONS, BRITISH (*continued*):
Measuring and Testing Instruments, 55, 82, 216, 267, 295, 378, 549, 605
Miscellaneous, 30, 56, 82, 108, 136, 164, 188, 216, 242, 268, 296, 324, 350, 378, 403, 429, 457, 487, 518, 550, 577, 605, 631, 661, 688, 717, 750
Motor Cars and Road Traffic, 56, 350, 403, 517
Pumping and Blowing Machinery, 29, 135, 631
Ships and Boats, 268
Steam Engines, 187, 457
Steam Generators, 107, 187, 215, 241, 267, 295, 377, 429, 457, 549, 577, 661, 687, 749
Switchgear, 55, 81, 163, 349, 517, 605, 631, 717
Telegraphs and Telephones, 29, 163, 241
Tramways and Railways, 82, 136, 324, 350
Transformers and Converters, 55, 81, 107, 163, 187, 267, 349, 403, 605, 717
Transmission of Power, 55, 81, 164, 215, 267, 377, 403, 429
Turbine Machinery, 377, 687
Welding, 164, 241

Paterson Engineering Co., Ltd., Annual Meeting, Engineers and Export Trade, 243
Peace, Engineers and World, A. C. Gardner, 480
Peace of the World, Engineers and the, 391; (Letter, 450)
Peat Fuel Power Station at Clonsast, Eire, (259)

PENCIL PORTRAIT:
Inglis, Dr. C. E. (*Supplement, November 11th*, 1938)

Peoria Sewage Works, America, Gas Power for, 259
Periscope, Submarine, Type C.H. 55, Barr and Stroud, Ltd., 62
Perkin's, Sir William, Adventure, and What Has Come of It, H. Levinstein, (591), 615
Personal and Business Announcements, 30, 56, 70, 108, 136, 164, 188, 216, 268, 296, 324, 350, 378, 404, 430, 458, 488, 518, 550, 578, 606, 662, 688, 718, 750
Personnel in Industry, A. P. M. Fleming, 467; (Leading Article, 473)
Petrol Pipe Line Between Douges and Montargis, (175), 215
Petrol Tanks, Concrete, La Paroi Hydraulique, 732
Petroleum Discovery in India, (74)
Petroleum Industry, 663
Petters, Ltd., 297; Gift to Employees, (701); Reorganisation at Brush Electrical Engineering Co.'s Works, Loughborough, 719
"Phee" Coal Elevator, Paterson Hughes Engineering Co., Ltd., 413
Philadelphia Sewage Treatment Scheme, (415)
"Philplug" Plastic Plugging Material for Screws, Philplug Products, Ltd., (290)
Phosphate Situation, American, 454
Photo-elasticity in Three Dimensions, R. Weller, (742)
Photographic Reproduction of Documents, (363)
Physics, The Contributions of Engineering to, M. L. E. Oliphant, 319
Physics, Logic and Probability in, C. G. Darwin, 237; (Leading Article, 229)
Physics, Modern, and the Engineer, 229
Pickle Liquor, Spent, New Use for, Sharon Steel Corporation, (285)
Pickling Acid Recovery Plant, Kestner Evaporator and Engineering Co., Ltd., 508
Piles, Reinforced Concrete Screw, G. Grimaud, 26
Pilger Mill Equipment for Jarrow Tube Works, Masch. Meer, A.G., 491
Piling, Steel Sheet, Some Canadian Wharf Structures of, R. F. Legget, 270, 301
Pipe Joints, Stewarts and Lloyds, Ltd., 386
Pipe Line, Petrol, between Douges and Montargis, (175), 215
Pipe Line Project, A Big, in U.S.A., (389)
Pipe Line, Velocity Profiles and Flow of Fluids through a Contracted, F. V. A. E. Engel and A. J. Davies, 720
Pipe Works, American Seamless Steel, Youngstown Sheet and Tube Co., 198
Pipes, Long, Sinking, off Shore at San Francisco, (645)
Pipes, Moulding Concrete Drainage, Underground, Allgemeine Transportanlagen, A.G., 654
Piston Rings, "Bricoseal" Surface Treatment for, British Piston Ring Co., Ltd., (117)
Planning, Industrial, The Problems of, H. Beaver, 511; (Leading Article, 503)
Plough, Self-tipping, Three-wheeled, J. H. McLaren, Ltd., 125
"Plybond," New Adhesive for Plywood, Bakelite, Ltd., (41)
Plywood Factory, New, at Willington Quay, (13)
Pointe au Pic, P.Q., Wharf Extension at, R. F. Legget, 272
Poisonous Gases in Industry, Hydrogen Cyanide (Prussic Acid) Vapour, 145
Poisson's Equation, Relaxation Method for the Solution of, D. G. Christopherson, 231
Pole-setting Equipment, Highway Trailer Co., 100
Pollution, Atmospheric, Conference on, 607
Port Hope, Canada, Wharf Construction at, R. F. Legget, 301
Port Improvements at Stockholm, (309)
Port of London Authority, Annual Report, 217; Appointments, (617); Mr. J. D. Ritchie, General Manager, 379
Port Talbot Calcium Carbide Factory Scheme, 137
Ports in a Duct, Theoretical Discharge of Air from, W. S. Brown, 587, 610
Potato Sorting Machine, Gooch and Son, 72
Pottery Manufacturing Centre, New Wedgewood Factory at Barlaston, (227), 297
Power Transmission Association, Winding up, (617)
Press, "Imperial" Pneumatic, for Laundry Work, D. and J. Tullis, Ltd., 305
Pressure Losses for Fluid Flow in 90 deg. Pipe Bends, K. Hilding Beij, 624
Pretoria, Radcliffe Observatory, 74in. Reflector for, Sir Howard Grubb, Parsons and Co., 298 (*Supplement, September 16th*, 1938), 326, 336, 353, 364
Prices and Export Trade, 459
Prices, Stabilised, in France, 215
Primers, Rapid-drying, Bakelite, Ltd., 510
Problems before the Engineering Profession, A. A. Potter, 103; (Letters, 145, 174)
Producer Gas Tractors, Latil Industrial Vehicles, Ltd., 72
Producer Gas for Vehicles and Ships, Committee on, 519, (563)
Production and Efficiency, A. L. Bowley, 658; (Leading Article, 647)
Production Engineering Research, 459
Production Plan, New French, 517
Production Problems, French, 487
Profile Modification, Gear Tooth Deflection and, H. Walker, 409, 434; (Letters, 500)
Profit-sharing in 1937, 83
Propaganda and Foreign Trade (Craven & Machine Tool *Gazette*), 10; (Leading Article, 16)
Protection, Eye, in High-temperature Operations, R. R. Butler, 24
Psychology, National Institute of Industrial, Special Course, 500
Public Health, Engineers and 542
Public Relations Policies, American, 572
Public Works in France, 107, 605
Public Works Grants in U.S.A., (645)
Pulley, Split, for Belt Drives ("Destron"), Douglas Lawson and Co., Ltd., 510
Pulleys, Variable Speed, Crofts (Engineers), Ltd., 608
Punkah Louvres, Thermotank, Ltd., 385

PUMPS:
Acid Pumps, Horizontal and Glandless Vertical, Kestner Evaporator and Engineering Co., Ltd., 508
Andre-Hutton Experimental Pump, Silentbloc, Ltd., 499
Axial Flow Pump, Mirrlees-Gill, Mirrlees Watson Co., Ltd., 275
Centrifugal Pump and its Model, 473; (Letter, 500)
Coisley Hill Sewage Works, Horizontal and Vertical Spindle Centrifugal Pumps, 66
Drainage Pumps, Oil Engines for, 160
Feed Pumps and "Optimum" Deaerator for La Mont Boiler Installation, G. and J. Weir, Ltd., 395
Feed Pumps for "Queen Elizabeth," G. and J. Weir, Ltd., 360
Fire Pumps, "Hatfield," Merryweather and Sons, Ltd., 72
Fountain Display at Glasgow Exhibition, Drysdale and Co., Ltd., 115
Hydraulic "V S G" Pump and Gear Units, Variable Speed Gear, Ltd., 664
"Imo" Screw Pump, Mirrlees, Bickerton and Day, Ltd., 274
Newnham Pumping Station, Water Softening Plant, W. Boby and Co., Ltd., 480
Portable "Forward" Diaphragm Pumping Set, T. W. Ward, Ltd., 387
Pumping Head, Thomas and Son (Worcester), Ltd., 125
"Rota" Pump for Sugar Factory, A. and W. Smith, Ltd., 333
Rotary Pump, High-pressure "Victor Magic," Victor Oil Engines (Coventry), Ltd., 499
Rotary Pump, "P.R.D.," Drum Engineering Co., Ltd., 262
Self-priming Vertical Marine Pump, Mirrlees Watson Co., Ltd., 275
"Upright" Circulating Pumps, Drysdale and Co., Ltd., 117
Varley Suds Pump Unit, Motor-driven, English Electric Co., Ltd., 225

Q

QUARRY and Rock Blasting, Use of Hydrogen in, (335)
Quarry, Stone, A New Cornish, Messrs. Gilsons, 570
Quarry Blasting Operation at Caldon Low, Staffs, (93)
"Queen Elizabeth," Cunard White Star Quadruple-screw Liner, John Brown and Co., Ltd., 189, 340 (*Supplement, September 23rd*, 1938), 351, 357, 390, 393
Queen Mary College, London, Retirement of Professor J. T. MacGregor Morris, 31
Quicksand, Laying Sewers Over, R. F. Mirick, (281)

R

RAILWAYS (GENERAL MATTERS):
(*see also* L.P.T.B.)

Accidents:
LONDON, MIDLAND AND SCOTTISH RAILWAY:
Belfast-Portrush Express Crash into Crossing Gates at Coleraine, (96)
Buxton-Manchester Line, Goods Train Derailment Near Peak Forest, (227)
Goods Train Mishap Between Millers Dale and Bakewell, (415)
Oakley Junction, Bedford, Railway Disaster Report, 165
Paisley Station Collision, (309)
Rutherglen Accident Report (Railway Axle Wheel Seat Failures), 203; (Letter, 226)
Wishaw South Station, Train Collision, (175)

RAILWAYS, GENERAL MATTERS (*continued*):
Accidents (*continued*):
LONDON AND NORTH-EASTERN RAILWAY:
Aberdeen Joint Station Crash, (415)
Castlecary Railway Accident, Report, 15
Nottingham, Victoria Station, Goods Train Derailment, (471)
SOUTHERN RAILWAY:
Herne Hill Station Collision, (443)
American Railway Accidents, (533)
Canadian Pacific Train Derailment Between Montreal and Quebec, (281)
Charing Cross (District Line) Accident Report, 325
Chicago, Milwaukee Pacific Railroad, "Olympian" Express Wreck at Carters Creek, (41)
Indian Railways, Passenger Train Derailment Between Trichinopoly and Madura, (232)
Jamaica Railways, Train Wrecked Near Balaclava, (149)
Level Crossing Accidents in America, (13)
New York Tube Accident, (227)
Northern Line, L.P.T.B., Strand Station Derailment, (591)
Railway Accidents in 1937, Annual Report, 157; (Leading Article, 177)
Rome-Naples Electric Train Collision Near Formia, (389)
Roumanian Train Crash on Galatz-Chisnau Line, (733)
South African Railway Accidents, 52
Spanish Railways, Passenger Trains Collide Near Barcelona, (389)
Waterloo, Northern Line, L.P.T.B., Collision Report, 36
Acceleration of Railway Services, S. H. Fisher, 706
American Railroads, New Railway Equipment, Statistics, (389)
American Railway Electrical Developments, 736
American Railway Fares Increase, (124)
American Railway Merger, Proposed, (563)
American Railway Rolling Stock, 362, (733)
American Railway Station Design, 130
American Railways, Permanent Way for Fast Trains, 572
Argentine Transandine Railway, (253)
Assam Railways Flooded, (93)
Belgian Congo Railways, Report on, (335)
Brake Shoes, Tests on, at Illinois, (227)
Braking of Railway Trains, C. H. Edgecombe, 277
Burma-Yunnan Road and Railway, C. A. Middleton Smith, 692, 725
Canadian Railways Amalgamation, (67)
Charges, Railway, for Merchandise Traffic, (617), 663
Chicago Underground Railway, (563), 742
Chinese Railways, New, (447)
"Clear the Lines"—The Case for the Railways, (673)
Compound Steel Rails, (389)
Congress, International Rail, The Fourth, (201)
Czechoslovak Railways Report, (501)
Derailing Tests on South African Railways, 581, 592; (Leading Article, 593)
Egypt, Railway Difficulties in, N. L. Ablett, (591)
Esla Railway Viaduct, Spain, 147, 150
French National Railways, Coal Order, (93)
French National Railway's Deficit, 55
French National Railway Economies, 349, 429
French Rail and Road Co-ordination, 55, 457, 687
French Railway Work, 241
French Railways and Road Controversy, 487
High Speeds on Railways, 44
Indian Railways, Broad-gauge Line Between Larkana and Jocobabad, (471)
Indian Railways, Feeder Roads for, (673)
Iran, Railways in, (617)
Iron and Steel, Railways and the Transport of, A. C. W. Impey, (41)
Italian Railways, Radio Communication on, (227); New Lines, (501)
Level Crossing Control in France, (591)
Loetschberg Mountain Railway Anniversary, (67)
London Underground Railway Improvements, 189
Milne, Sir James, Chairman, General Managers' Conference, (673)
Missouri Pacific Railroad, Rail Support on Soft Ground, (253)
Moffat Tunnel, Colorado, Rail Corrosion, (501)
Moorgate Joint Station, L.P.T.B., 380
Motor Cars, Carriage of, by Rail, (673)
New South Wales Railways, Report on, (563)
New Zealand Railways, Statistics, (533), (645)
North America, The Railway Position in, G. M. Harrison, 652
North Union Railway (Wigan-Preston) Centenary, (471)
Northern Pacific Railroad, Large Turntables, (617)
Paris Underground Railways, (41)
Portuguese East Africa, Proposed Tete Railway, (175)
Rail Support on Soft Ground, Missouri Pacific Railroad, (253)
Rail Transport, G. S. Szlumper, 543
Rails, Longer, on South African Railways, 546
Railway Air Services, Ltd., Merger, (149)
Railway Statistics, Ministry of Transport, (41), (175), 297, (443), (532), (673)
Railway Wheels, P. C. Dewhurst, 9
Road and Rail Again, 619
Rome-Naples Express Service, (149)
Russian Railway System, (591)
Shatter Cracks in Rails, (175)
Signalmen's Wages, (121)
South African Railways, Branch Lines, 52; Cape Eastern Main Line Regrading, 184; Derailing Tests, 581, 592, (Leading Article, 593); Earnings, 545; Expenditure, (335), 426; Inquiry Wanted, 655; Longer Rails, 546; Purchases, (201)

RAILWAYS, GENERAL MATTERS (*continued*):

South Bihar Railway, Government of India to Purchase, (424)
Southern Pacific Railroad, Diversion in California, (13)
Staff Census, (363)
Swedish Railway Transport, (733)
Swedish State Railways, Wireless Control in Shunting, (533)
Swiss Federal Railways, Economic Report on, (314)
Swiss Railways and the Zurich Exhibition, (701)
Tasmania, Co-ordination of Transport Services, (335)
Tokyo–Shanghai Direct Railway Service, Proposed, (335)
Train Running Times, The Calculation of, D. M. Wilcox, 277
Trans-Iranian Railway, 217
Transport, World, 565
Turntables, Large, Northern Pacific Railroad (U.S.A.), (617)
Underground Rolling Stock, New, (13)
Wagon, 300-ton, for English Steel Corporation, Head, Wrightson and Co., Ltd., (733)
Wireless Control in Shunting, Swedish State Railways, (533)

Great Western Railway:

Appointments, (733)
Armour Plate Glass for Express Engines, (93)
Goods Wagons, New, (67)
Paddington Signal-box Fire, 607, (617), (673)
Penzance Station Alterations, (415)
Road Motor Drivers, School for, (149)
Subsidence between Truro and St. Austell, (733)
Track-relaying Programme, (533)
Weaver Viaducts, Reconstructing the, 551
Westbourne Bridge Signal-box Fire, (733)
Whitland Station Improvement Scheme, (501)
Winter Train Services, (281)

London, Midland and Scottish Railway:

Appointments, (201), (563), (682)
Bowker Vale Station, Manchester–Bury Line, (335)
Britain's Highest Line to Close, (701)
"Centenary" Express, (253)
"Coronation Scot" to Tour America, (13)
Evening Classes for Employees, (389)
Films for Staff, (415)
"Foulney" Hopper Dredger, Ferguson Brothers (Port Glasgow), Ltd., (335)
Freight Services, (645)
Goole Docks Improvements, 31
High Speeds on Railways, 44
Holyhead Conveyors, (253)
London–Birmingham Railway Centenary, (149), 325, (Leading Article, 337), 551
Monsal Dale Viaduct, Strengthening, 57
North Union Railway (Wigan–Preston) Centenary, (471)
Penrith and Keswick Line Improvements, (121)
Quarry Blasting at Caldon Low, Staffs, (93)
School of Transport at Derby, 118
Scottish Committee, (201)
Shock-absorbing Wagons, (733)
Staff College at Derby, (281)
Station Alterations, (363)
Steel Wagons, (227)
Stores Department Statistics, (41)
Strike, An Inexcusable, 445
Telephone Equipment, Rail Transport of, (645)
Unstone Viaduct, Strengthening, (501)
Wagon Works Improvements at Earlestown and Bromsgrove, (201)
Weaver Viaducts, Reconstructing the, 551
Wembley Four-span Bridge across North Circular Road, (657)
West Allerton Station, (673)
Wigan Signalling Scheme, (563)
Winter Services, Improved, (335)

London and North-Eastern Railway:

Appointments, (533), (645)
Automatic Train Control between Edinburgh and Glasgow, (212)
Bell, A Locomotive, Presented to U.S. Embassy, 57
Brimsdown Station, Enfield, New Road Bridge, (363)
Cambridge Level Crossing Scheme, (389)
Colour Light Signals on Southend Line, (13)
"Coronation" Train Speed Record, (41), 89, (264)
Cost of Extensions in London Area, (121)
Edinburgh Signalling, (501)
"Flying Scotsman," New Trains, 40
"Flying Scotsman," The Old, Excursi[on], (175)
Frodingham and Stainforth Improvements, (93)
Halton Camp, R.A.F. School, Removal, (121)
High Speeds on Railways, 44
"Hook Continental," New Train, 420
Hull, Paragon Station, Resignalling, 49
Ipswich Locomotive Depôt, Modernisation, (201)
King's Cross Station Improvements, (591)
Locomotive Programme, 1939, (701)
Matthews, Sir Ronald, Elected Chairman, 379
Newcastle-on-Tyne Junction, "Era" Manganese Steel, Hadfields, Ltd., 571
Programme for 1939, (591)
Speed Record by "Coronation" Train, (41), 89, (264)
Wagon, Large Trolley, (253)
Wagon Programme, 1939, (701)
Whitelaw, Mr. William, Retirement, (152)
Withdrawal of Trains, (645)

Southern Railway:

Folkestone Harbour Improvement Works, (471)
Lightning Causes Train Stoppage, 31

RAILWAYS, GENERAL MATTERS (*continued*):

Southern Railway (*continued*):

Raworth, Mr. A., Appointed Chief Electrical Engineer, 351
Sale of Railway Stations, (415)
Waterloo and Bournemouth Service, New Trains, (149)
Waterloo and City Railway, (533), (645)

Electrification of Railways:

American Railway Electrica Developments, 736
Berlin and Naples Electrification, (309)
Europe, Electrified Lines in, (389)
Finland Railway Electrification, (281)
French Railway Electrification, 241
Gotheborg and Oslo Line Electrification, (701)
Italian Railway Electrification, (93), (591)
Jugoslavia Railway Electrification, (591)
Lightning Causes Train Stoppage, Southern Railway, 31
L.N.E. Railway, Shenfield Electrification, (533)
New Zealand Railway Electrification, Wellington and Johnsville Line, (253)
Norwegian Railway Electrification, (281)
Paris Underground Railways, Electrification Extensions, (41)
Polish Railway Electrification Schemes, (13)
Rome and Naples Express Service, (149)
Scotland, Proposed Railway Electrification, (733)
Southern Railway, Littlehampton and Bognor Regis Electrified Extension, 7, 14; Proposed Tunbridge Wells and Oxted Electrification, (363)
Swedish Railway Electrification Schemes, (13)

RAILWAYS, LOCOMOTIVE MATTERS:

American Locomotive and Rolling Stock Convention, 211
American Locomotive Tests, (533)
American Locomotives, Powerful, 236
Atchison, Topeka and Santa Fe Railroad, 4–8–4 Passenger and 2–10–4 Freight Locomotives, Baldwin Locomotive Works, (701)
Buenos Aires Great Southern Railway, Locomotives, 4–6–2 and 4–8–0 Types, Vulcan Foundry, Ltd., (563), (617)
Canadian Pacific Railroad, "Hudson" Locomotive with Mechanical Stoker, 207
Chicago and North-Western Railroad, Streamlined 4–6–4 Passenger Locomotives, American Locomotive Co., (309)
Denver and Rio Grande Western Railroad, Four-cylinder 4–6–6–4 Articulated Locomotives, (121)
Eire Great Southern Railway, New 4–6–0 Express Locomotives, (363)
Electric Locomotive for By-products Plant at West Hartlepool, Greenwood and Batley, Ltd., 87
Electric Locomotive, High-speed, Moscow Dynamo Works, (471)
Flameproof Electric Locomotive for Admiralty, Greenwood and Batley, Ltd., 451
French Railway 4–6–0 Locomotive Fitted with Velox Boiler, (253)
German State Railways, The Advantages of Streamlining Locomotives, (645)
Great Western Railway, Armour Plate Glass for Express Engines, (93)
Indian Locomotive Inquiry, 109
Locomotive Chimneys, 123
L.M.S. Railway, "Lion" Locomotive, 243
L.N.E. Railway, An American Locomotive Bell, 57; Conversion of "Atlantic" Locomotive No. 3279, (67); Counter Pressure Brake Test of Locomotives, 142; Ipswich Locomotive Depôt, (201); "Pacific" Locomotive "Royal Lancer's" Millionth Mile, (67)
Mallet Articulated Locomotives, Denver and Rio Grande Western Railroad, 238
Minneapolis, St. Paul Railroad, Freight and Passenger 4–8–4 Locomotives, Lima Locomotive Works, (443)
New York Central Railroad, Express Passenger 4–6–4 Class Locomotives, 236
New Zealand Railways, Thirty Locomotives Ordered, (389)
Pitting and Corrosion in Locomotive Boilers, (309)
"Silver Rocket," Locomotive Model, Dr. J. B. Winter, (93)
South African Railways, Beyer-Garratt Articulated Locomotives, Beyer, Peacock and Co., Ltd., (673); Locomotives from Overseas, 546
Steam Locomotive Development, (121)
Stokers, Mechanical, on Locomotives, E. H. Livesay, 207
Streamlined 4–6–4 Passenger Locomotives, American Locomotive Co., Ltd., (415)

Diesel, Oil, and Oil-electric (also Railcars):

Associated Equipment Co.'s Railcar Shops, Southall, 727
Control of Diesel Railcars, W. G. Wilson, 594, 602
Great Western Railway, Railcars Ordered from Associated Equipment Co., Ltd., (281)
L.M.S. Railway, Experimental Oil-engined Train, (309)
Oil-electric Shunting Engine, 760 H.P., Davenport-Besler Corporation, (335)
Oil Engine Locomotive, 16–20 B.H.P., Ruston and Hornsby, Ltd., 73
Oil-engined Shunting Locomotive, 78 B.H.P., Associated Equipment Co., Ltd., 679
Turbo-electric Locomotive, 5000 H.P., for Union Pacific Railway, 400
"Zephyr" Four-coach Streamlined Oil-electric Train, Chicago, Burlington and Quincy Railroad, (452)
"Zephyr" Oil-engined Locomotives in Service, R. Budd, (238)
Radiography, H. E. Seemann, (121)
Rail and Road—*Weekly—see* Railways, and also Roads
Rake, Tractor Expanding, Harrison, McGregor and Co., Ltd., 98
Randupson Process of Cement Moulding, F. W. Rowe, 211
Rapid-drying Primers, Bakelite, Ltd., 510
Rationing and Weighing Machine, "Feedright," Alfred Herbert, Ltd., 98
"Rawlplug" Screw Anchor, Rawlplug, Ltd., (284)
Rearmament, Engineering Firms and, 31
Rearmament Production, Defensive, J. Holloway, 450
Reavell-Askania Regulators, New Workshop at Ipswich, Reavell and Co., Ltd., 19
Reflective Thermal Insulating Material, "Silvercote," International Engineering Concessionaires, Ltd., (78)
Reflector, 74in., for Radcliffe Observatory, Pretoria, Sir Howard Grubb, Parsons and Co., 298 (*Supplement, September 16th*, 1938), 326, 336, 353, 364
Reflectors, Red Rear, on Motor Vehicles, (443)
Refrigeration in Lens Making, Kodak, Ltd., (563)
Refuse Disposal, Ministry of Health Returns, (443)
Regulation, Automatic, Recent Developments in, Reavell and Co., Ltd., 19
"Regulus" Portable Concrete Mixers, Benford, Ltd., 317
Relaxation Applied to Calculate the Flow of a Compressible Fluid, J. R. Green, 231
Relaxation Method for the Solution of Poisson's Equation, D. G. Christopherson, 231
Relief of Internal Stress in Castings, L. E. Benson and H. Allison, 23
Rendel, Palmer and Tritton, Centenary, 705
Reports, Government, &c.—*see* Technical Reports
Research, Coal and Oil, 325
Research, Production Engineering, 459
Reuter, Dr.-Ing. H. C., Industrial Jubilee, (13)
Revolution, French Industrial, Lessons of the, 69
Richardsons, Westgarth and Co., Ltd., General Meeting, (149); New Appointments, (201)
Ridger, Spring Balanced, W. N. Nicholson and Sons, Ltd., 97
Right Man, Choosing the, 391
Ritchie, Mr. J. D., General Manager, Port of London Authority, 379
Rivet Holes, Detection of Cracks Round, V. Mount, (13)
Riveted Joints, Fatigue Tests of, W. M. Wilson and F. P. Thomas, (363)
Riveters, Squeeze, Yokes for, Broom and Wade, Ltd., 596

ROADS AND HIGHWAYS:

Africa, Road Making in, 631
American Highway Planning Surveys, 572
American Highway Tunnels, 624
Argentina, Roads in, Report, (443)
Argyllshire Road Improvements, (41)
Basic Road Statistics for Great Britain, 109
Bog Blasting, 140
Brick Road Paving, Reinforced, American Development, 742
British Road Federation, Membership, (506)
British Road Policy (S.M.M.T. Dinner), 431
British Road Tar Association, Annual Meeting, 519
Burma-Yunnan Road and Railway, C. A. Middleton Smith, 692, 725
Cambridge Level Crossing Scheme, (389)
Cardiff, New Road, (149)
Chicago, Elevated Street, 160
Chichester By-pass Road, (471)
Chinese Road Construction, New, 442
Concrete Road Resurfacing in Pennsylvania, (563)
County Surveyors' Road Scheme, 151
Cyclists and the Roads, (13)
Dartford-Purfleet Tunnel Approach Road, (415), (645)
Divided Highways, Experience with, P. H. Kitfield, (227)
Experimental Work on Roads, Report on, 607
Farnham (Surrey) By-pass, (41)
French Rail and Road Co-ordination, 55, 457, 687
French Road and Rail Controversy, 487
Gas Generator Road Vehicles in U.S.S.R., (363)
German Autobahn, 3000th Hectometre Opened, (733)
Gloucester By-pass Inquiry, (248)
Great North Road Diversion Scheme at Doncaster, (67)
Harrisburg-Pittsburg Toll Road, U.S.A., (201)
Hebrides Road Improvements, (93)
Indian Railways, Feeder Roads for, (673)
Kingston By-pass Experiment, (262)
Lake District Road Improvements, (93)
Lancashire's Transport Problems, 31
Level Crossing Accidents in America, (13)
Level Crossing Control in France, (591)
London Street Works Programme, (471)
Middlesex Road Works, (149)
Modern Roads Movement, Formation of, 431
Morecambe, New Promenade, (363)
Motor Roads Scheme, Proposed, (149)
New York Road Project, (471)
Paris Underground Roads, 749
Reflectors, Roadside, in America, (67)
Road Accidents in Great Britain, (201), (592), (733)
Road Development in Great Britain, F. C. Cook, 275
Road and Rail Again, 619
Road Research Report, 489
Road Traffic Census, 1938, (201)
Road Traffic Control, Automatic, L. M. Ericsson Co., (617)
Road Transport (Defence) Advisory Committee, (415)
Road Transport and Roads, G. S. Szlumper, 543
Roads and Traffic, Sir C. Bressey (Pres. Address, Junior Inst. of Engineers), 683; (Leading Article, 675)
Russian Motor Roads, (673)
Sahara Road Construction, 323, 631

ROADS AND HIGHWAYS (*continued*):

St. Helens-Southport Road, Lancashire, 405
St. Pancras Borough Street Lighting Scheme, (89)
Seaham Harbour Approaches, (253)
Somerset Road Improvements, (13)
South African Road Competition with Railways, 184
South African Roads Programme, (227)
South African Roads Speed-up, 292
Street Lighting, J. F. Colquhoun, 290
Street Lighting, Centralised Automatic Control of, E. E. Hoadley and H. P. Baker, 99
Tar Surfaces, Improved Road, Sir D. Milne Watson, 519
Tasmania, Co-ordination of Transport Services, (335)
Toronto, Dual Road Bridges, (443)
Trans-African Motor Road, 403
Transport, Road Goods, and National Emergency, 351
Trunk Roads in Britain, J. O. Willis, (335)
United States' Roads, L. I. Hewes, (227)
Western Area Traffic Commissioners, (505)
Western Avenue Viaduct, (201)

Robinson, T., and Son, Ltd., Centenary, (182)
Rock Drills, Lightweight Pneumatic, Broom and Wade, Ltd., 742
Roller, "H" Pattern Oil-engine-driven Road, Wallis and Steevens, Ltd., 98
Rollers, Road, Marshall, Sons and Co. (Successors), Ltd., 125
Rolling, Continuous, of Sheet and Tin-plate, J. Malborn, (224)
Rolling Mill, 8in. Double Duo, Brightside Foundry and Engineering Co., Ltd., 22
Rolling Mill and Furnace Equipment, Electric, General Electric Co., Ltd., 206
Roofing, Cap, Zinc Roll, (562)
Rope Haulage in American Zinc Mines, (210)
Ropeway at Avonmouth Works of National Smelting Co., British Ropeway Engineering Co., Ltd., 737
"Royal" Corrodeless Process for Metal Parts, International Corrodeless Co., 89
Rubber, Chlorinated, (335)
Rubber Mudguards for Buses, (617)
Russian Irrigation Systems, Old, (533)

S

SACK Stackers, 40ft., Spencer (Melksham), Ltd., 625
"Sacking Yourself," On, 255
St. Lawrence River Development, (13)
"Samsonow Jicwood," New Constructional Material, Jicwood, Ltd., 682
San Joaquin Valley Oil Well, California, (471)
Sand Preparation Plant, Cement, August's, Ltd., 398
Sandslinger Moulding Machine, Foundry Plant and Machinery, Ltd., 250
Savings Schemes, Holiday, (415)
Saw, An Electric Arc, Miller Electric Manufacturing Co., (227)
Scholarship, Travelling, National Safety First Association, (561)
Scholarships, British Aircraft Industry, (13)
School, British Foundry, (175), (253)
School of Engineering and Navigation, L.C.C., Extensions, (121)
Science Committee, The Parliamentary, Annual Meeting, (701)
Science, Influence of Astronomy on, F. R. Moulton, 453
Science Museum, Gas Exhibits at, (501)
Science, The Social Relations of, Committee, (652)
Science and Warfare, Lord Rayleigh, 204; (Leading Article, 204)
Scientific and Technical Terminology, 255
Scoops, Earth Moving, J. and H. McLaren, Ltd., 125, 342
Scotland, Special Areas in, (201)
Scottish Industrial Development, (602)
Scottish Trading Estates, New, 137
Scraper, Drag, for Belfast Harbour Power Station, Fraser and Chalmers Engineering Works, 210
Scraping, Loading from a Rock Dump by, Holman Brothers, Ltd., 261
Screen, "Ty-Rock" Mechanically Vibrated, International Combustion, Ltd., 63
Screw-loosening Device, Horstman, Ltd., 20
Sealing Porous Aluminium Castings, E. E. Hall, (389)
Selective Conveyor Installation, G. W. King, Ltd., 21
Set Square, A Trigonometrical, A. G. Thornton, Ltd., 343
Sewage Disposal in the Great Lakes Area, (281)
Sewage Scheme for Bournemouth District, (201)
Sewage Treatment Scheme for Philadelphia, (415)
Sewage Works, Coisley Hill, Sheffield, 65
Sewage Works at Peoria, America, Gas Power for, 259
Sewage Works, Ward's Island, New York, 555; Sludge Vessels, 586
Sewerage Scheme, Durban's, 90
Sewerage Works, The Paris Suburban, 436
Sewers, Breathing Apparatus for Use in, (501)
Sewers Over Quicksand, Laying, R. F. Mirick, (281)
Shaft Fractures, Interesting, British Engine Boiler and Electrical Insurance Co., Ltd., 590
Shanghai Factories, Casualties in, 104
Shearing Machine, Double Carpet, H. W. Aitken Co., Ltd., 354

SHIPS AND SHIPBUILDING:

General:

American Fast Coasting Cargo Steamers, 571
American Marine Developments, 714
American Motorships, 160
American Shipbuilding Standards, J. W. Powell, (673)
American Shipbuilding Statistics, (175), (281)

SHIPS AND SHIPBUILDING (*continued*):

General (*continued*):

Anchor, Aluminium Bronze, T. M. Birkett and Sons, Ltd., 470
Atlantic Records, "Queen Mary," 165, 189
Aubrey, S. J., Re-elected Chairman of Lloyd's, (673)
Belgian Shipbuilding Programme, (281)
British Corporation of Shipping, Rules for Fusion Welded Boilers, 165
British Merchant Shipping, W. A. Souter, 607
British Shipping in the Pacific, 109
British Shipping Problems, K. R. Pelly, 109
British Shipping Statistics, (591)
Building of Ships: A British Survey, Sir James Lithgow, 4
Bulgarian Shipping Loan, (389)
Burntisland Shipbuilding Co., Ltd., Record Output, (201)
Campbell, Sir Malcolm, Water Speed Record, (227), (335)
Canadian Pacific Liners, Improvements, (471)
Canadian Pacific Liners, Orders for New, (93)
Care of Ships' Cargoes, O. D. Colvin, W. H. E. Hahne, and M. R. Colby, (645)
Cargo Service, Fast, Between U.S.A. and South America, (389)
Chamber of Shipping Returns, (149)
Clarke-Troller Outboard Motor, Treglown, Ltd., 499
Clyde Dredging, (701)
Clyde Shipbuilding Statistics, (149), (281), (389), (733)
Clyde Shipping Statistics, (281), (533)
Clyde Wharf Extension Scheme, (415)
Coal Fuel for Ships, (281)
Coal in the Mercantile Marine, Committee's Report, 155; (Leading Article, 151)
Coast Lines, Ltd., New Ships, (13)
Coastal Shipping, Claims of, (645)
Coastal Trade, British, Vessels Employed in, (41)
Coastwise Shipping, Report on, 405
Congress, International Shipping, 1940, (13)
Cuban Merchant Marine, 269
Dollar Line, U.S.A., New Liners, (471)
Dollar Line to be Taken Over by U.S. Federal Maritime Commission, (227)
Dredger, A Large Gold, at Lake Kanieri, New Zealand, (443)
Drifters, Steam, Redesigned, F. H. Todd, 519
Electric Propulsion of Ships, L. R. Horne, (733)
Empire Cargoes, The Carrying of, (533)
Falmouth Port Improvement Works, (563)
Fans for Ship Ventilation, Thermotank, Ltd., 385
Foreign-built Ships, J. H. Maurice Clark, (121)
French Line, Proposed New Liner, 457
French Mercantile Marine, (733)
French Shipbuilding, 717
Froude, William, Laboratory, Annual Report, 431
Fruit Service, Weekly, Between Liverpool and Canary Islands, (93)
German Shipbuilding, (121)
German Shipbuilding Yard to Re-open, Stettiner Vulcan Werft, (201)
Glasgow, Empire Exhibition, Shipbuilding Hall, 198
Gold Dredger, A Large, at Lake Kanieri, New Zealand, (443)
Grand Union Canal Co.'s Shipping Interests, (673)
Greenock Shipyard, Sale of, National Shipbuilders' Security, Ltd., (563)
Hargreaves, Dr. J., Appointed Principal, South Shields Marine School, (149)
Harland and Wolff, Ltd., 1938 Output, (701)
Heating, Electric, for Merchant Ships, H. C. MacEwan, (591)
"Hydrogap," New Type of Rudder, W. S. Collie, 405, 708
Idle Tonnage, British, (471)
International Shipping Congress, 1940, (13)
Italian Shipbuilding Programme, (533)
Japanese Liners, New, Mitsubishi Heavy Industries Co., (701)
Japanese Shipping Statistics, (443)
Jarrow Free Ferry, (701)
Johnson, T. W., Retirement from Natal Line, (41)
Laid-up Tonnage, The World's, (253)
Launch, Oil Engine Driven, Twin-screw, for Anglo-Iranian Oil Co., J. I. Thornycroft and Co., Ltd., 500
Launches and Trial Trips, 30, 56, 70, 164, 216, 268, 324, 378, 514, 578, 606, 662, 688, 746
Lifeboat Depôt on Laing's Industrial Estate, Elstree, R.N.L.I., (673)
Lifeboat, Motor, for Newbiggin, R.N.L.I., (501)
Lifeboat, Motor, for Salcombe, R.N.L.I., (281)
Lifeboat, "Staybrite" Stainless Steel, Mechans, Ltd., 250
Lifeboats, Motor, for Ireland, R.N.L.I., (121)
Light Vessels, Conversion of, (415)
Liverpool Shipping Statistics, (93)
Liverpool Underwriters' Association, Shipping Casualties, (13), (175), (389)
Lloyd's Register of Shipping, Annual Report, 546; Quarter's Shipbuilding Returns, 76, 424; Statistical Tables, 153; Wreck Returns, (41), (563); Wreck Statistics for 1937, 102
London General Shipowners' Society, Annual Meeting, 109
Marine Engineer, The State and the, Sir E. Julian Foley, 399
Marine Oil Engine in America, J. E. Burkhardt, 11
Matheson, Sir Charles, Retirement from Orient Line, (201)
Mechanical Stokers on Ships, Direktor Ing. Schneider, (533)
Mercantile Marine and Coal Fuel, (253)
Mercantile Ships, The Use of Coal in, 109
Merchant Navy, The, Lord Lloyd, (13)
Merchant Navy, The British, F. E. Rebbeck, (443)
Merchant Navy Defence Course, (41)
Mersey Shipping, (617)
Neon Signs for Measured Mile Posts, 405
Noise Measurements Aboard Ship, H. A. Simms, 345
Noise Reduction in Ships, R. S. Robinson, 568
Norddeutscher Lloyd Fleet Modernisation, (13)
Oil *versus* Coal for Ships, Sheaf Steam Shipping Co., Ltd., (701)
Oil Engines, British, and Shipyard Orders, 1
Pacific Liners, Postponed Orders for, Lord Craigmyle, 243
Pacific Steam Navigation Co. Acquired by Royal Mail Lines, Ltd., (415)
Pallion Shipyard, Proposed Sale, (201)
Parsons, Sir Charles, and Marine Propulsion, S. S. Cook (Parsons Memorial Lecture), 638
Periscope, Submarine, Type C.H. 55, Barr and Stroud, Ltd., 62
Poland-Sweden Ferry Service, Proposed, (389)
Producer Gas for Vehicles and Ships, Committee on, 519, (563)
Reserve of Ships, P. Haldin, 633
Richardsons, Westgarth and Co., Ltd., General Meeting, (149), New Appointments, (201)
Rosyth Dockyard, 633, 663
Royal Mail Lines, Ltd., Acquires Pacific Steam Navigation Co., Ltd., (415)
Royal Mail Service to South Africa, (363)
Rudder, New Type of ("Hydrogap"), W. S. Collie, 405, 708
Scandinavian Shipping Statistics, (93)
Scottish Shipbuilding Statistics, (67)
Sewage Sludge Vessels, Sea-going, United Shipyards, Inc., 586
Shipbreaking on the Clyde, (563)
Shipbuilders, Shipowners and International Trade, T. Russell Cairns, 483
Shipbuilding Employers' Federation, Annual Meeting, 551
Shipbuilding Orders, New British, (591)
Skilled Labour Shortage in Shipyards, Richardsons, Westgarth and Co., Ltd., (149)
South African Sea Services, Speeding Up, 545
South Shields Marine School, Dr. J. Hargreaves Appointed Principal, (149)
South Wales Ports, Decreasing Traffic, (309)
State, The, and the Marine Engineer, Sir E. Julian Foley, 399
Swan, Hunter and Wigham Richardson, Ltd., Resignation of J. Denham Christie, (335)
Swedish Shipbuilding, (121)
Tank Steamers, American, 454
Telephones for Ships in London Docks, (201)
Tramp Compensation Pool, Proposed, (335)
Tramp Shipping Administrative Committee, (701)
Transatlantic Cargo Services, (363)
Transatlantic Travel, G. W. Powell, (175)
Tugs for South African Government, A. and J. Inglis, Ltd., 184, 426
Turbine Unit, 3500 S.H.P. Geared Steam, Model, Parsons Marine Steam Turbine Co., Ltd., 199
Turbines, "Simplex Unit," Parsons Marine Steam Turbine Co., Ltd., 438
Turkish Black Sea Port, Proposed, at Tchatalazi, (389)
Turkish Shipbuilding Order, Swan, Hunter and Wigham Richardson, Ltd., (645)
Turkish Ships Ordered from Germany, (227)
Union-Castle Ships, Repowering, 379
United States Liner to Replace "Leviathan," Keel Laid, (253)
United States Mercantile Marine, New Ships, (389)
United States Shipbuilding, (645)
United States and South America, Fast Cargo Service, (389)
Vibration in Ships and Aircraft, B.A. Discussion, 307
Vibration of Structures, Determining Natural Modes of, H. C. Hayes and E. Klein, 682
Wear Navigation, (363)
Welding Experiment at Collingwood Shipyard, Ontario, 212
Whitley Bay Measured Mile, Neon Signs for, 405
Yarrow Tank, Scale Model, at Glasgow Exhibition, 199

Named Liners and Miscellaneous Vessels:

Aachen, Norddeutscher Lloyd Steamer, Fitted with Mechanical Stokers, (533)
America, United States Liner, Newport News Shipbuilding and Dry Dock Co., (673)
Amra, British-India Twin-screw Turbine Steamer, Swan, Hunter and Wigham Richardson, Ltd., 666; (*Supplement, December 16th*, 1938)
Anglo-Australian, Wreck Commissioner's Report on, (471)
Asama Maru, Nippon Yusen Kaisha Liner, Second "Maiden" Voyage, 351
Berengaria, Cunard White Star Liner, to be Broken Up, (471), (533)
Besarabia, High-speed Motorship, Burmeister and Wain, Ltd., (415)
Blue Bird, Water Speed Record, Sir Malcolm Campbell, (227), (335)
Brockley Combe, Motor Vessel, Charles Hill and Co., Ltd., (253)
Canton, P. & O. Twin-screw Turbine-driven Liner, Alexander Stephen and Sons, Ltd., 379, 416, 419
Carnarvon Castle, Re-engining, Harland and Wolff, Ltd., (13); England and Cape Town, Recording Crossing, (363)
Cubahama, Bahama Line Fast Coastal Liner, Henry Robb, Ltd., 217
Dolomite-4, American All-welded Tanker, (363)
Dominion Monarch, Shaw, Savill Motor Liner, Swan, Hunter and Wigham Richardson, Ltd., (121), 137
Durban Castle, Union-Castle Liner, Harland and Wolff, Ltd., 719
Ettrick, P. & O. Troopship, Barclay, Curle and Co., Ltd., (227), 719
Foulney, L.M.S. Railway Hopper Dredger, Ferguson Brothers (Port Glasgow), Ltd., (335)
Karimata, Dredger for Salvaging *Lutine* Gold, (67)
Kelvin, Cable-laying Ship, Western Union Telegraph Co., 165
Leviathan, United States Liner, Successor to, (93)
Lutine, Salvage Attempt Abandoned, (309)
Mauretania, Cunard White Star Twin-screw Liner, Cammell, Laird and Co., Ltd., 143, 178, (*Supplement, August 5th*, 1938), (645)
Naldera, P. & O. Liner, Sold for Breaking Up, 579
Neptunia, Overseas Salvage and Towage Tug, Cochrane and Sons, Ltd., (309)
Normandie, French Line Liner, Hundredth Crossing, (67), 83; Proposed Sister Ship, 457
Oranje, Netherland Steamship Co.'s Motorship, 12,500 S.H.P. Oil Engines for, Sulzer Brothers, (93), 361
Oranje Line, Grand Union Canal Transport Service, 459
Patria, Hamburg-Amerika Oil-electric Ship, Deutsche Werft, (227)
Peter the Great, Russian Ship Salvage, (591)
Pretoria, Union-Castle Motor Liner, Harland and Wolff, Ltd., (443)
Queen Elizabeth, Cunard White Star Quadruple-screw Liner, John Brown and Co., Ltd., 189, 340, 351, 357, 390, 393 (*Supplement, September 23rd*, 1938)
Queen Mary, Cunard White Star Liner, Docking Feat at New York, (443); Hundredth Atlantic Crossing, (309); Mishap at Southampton, (149); New Atlantic Record, 165, 189; Staff Changes, (175)
Regent Tiger, Motorship for C. T. Bowring, Swan, Hunter and Wigham Richardson, Ltd., 287
Richard King, Floating Hotel for Imperial Airways' Passengers at Mozambique, (733)
Richmond Castle, Union-Castle Cargo Ship (175)
Rowallan Castle, Union-Castle Cargo Ship, (175)
Samuel and Marie Parkhouse, Motor Lifeboat for R.N.L.I., (281)
South Steyne, Ferry Ship for Australian Service, Henry Robb, Ltd., (41)
Tjikalengka, Java–China–Japan Line Motor Liner, Nederland Shipbuilding Co., (93)
Warwick Castle, Union-Castle Liner, Repowering, Harland and Wolff, Ltd., 379
Winchester Castle, Union-Castle Liner, Re-engining by Harland and Wolff, Ltd., (733)

Naval Matters:

BRITISH:

Admiralty Metallurgical Laboratory at Sheffield, 689, 706
Admiralty Pinnace Attached to H.M.S. "Vernon" Torpedoed, (363)
Air Reserve, The Naval, (591)
Aircraft Carriers, "G.U.N.S.," 450
Battleships, Larger, 43
Cruisers, "Dido" Class, Ordered by Admiralty, (227)
Motor Torpedo Boats Ordered, 189
Naval Orders, New, (645)
Picket Boat, Oil-engined, for the Royal Navy, John I. Thornycroft, Ltd., 129
Portsmouth Naval School Site, (149)
Rosyth Dockyard, 633, 663
Ships Nearing Completion for British Navy, (41)
Victory Museum, Portsmouth Dockyard, Opened, (121)
Warship Launches, (471)
Warships, New British, (389), (415)
H.M. Aircraft Carrier, "Argus," (175)
H.M. Aircraft Carrier "Implacable," Ordered from Fairfield Co., 405
H.M. Depôt Ship "Forth," Launch, John Brown and Co., Ltd., (201)
H.M. Destroyer "Jackal," Launch, (471)
H.M. Destroyer "Jersey," Launch, (363)
H.M. Destoyer "Jupiter," Launch, (471)
H.M. Flotilla Leader "Jervis," Launch, R. and W. Hawthorn Leslie and Co., Ltd., (309)
H.M. Flotilla Leader "Kelly," Launch, (471)
H.M. Minesweeper "Bramble," Launch at Devonport, (93)
H.M. Monitor "Erebus," Reconditioning by J. I. Thornycroft and Co., Ltd., (711)
H.M. Sloop "Scott," Launched by Caledon Shipbuilding and Engineering Co., Ltd., (253)
H.M. Submarine "Thetis," Launch by Cammell Laird and Co., Ltd., (41)
H.M. Submarine "Thistle," Launch, (471)
"Research," Royal Research Ship, Philip and Son, 189
"Research," Admiralty Non-magnetic Ship, Aluminium Bronze Anchor, T. M. Birkett and Sons, Ltd., 470

SHIPS AND SHIPBUILDING (*continued*):

Naval Matters (*continued*):

FOREIGN:

American Navy, Early History of the, H. M. Neuhaus, 130
Egyptian Fleet, (617)
French Naval Construction, 267, (733)
German Aircraft Carrier "Graf Zeppelin," (673)
German Naval Plans, 217
Turkish Warships, New, (201), (533)
United States Navy Plans, (591)
Yogoslav Flotilla Leader, Machinery Ordered from Yarrow and Co., Ltd., (563)
Yugo-Slavian Naval Orders, (645)

Shore and Beach Protection, American, 572
Short Notices—*see* Literature
Shrewsbury School, New Laboratories, 351
Silver and Silver Alloys, Tarnishing of, and its Prevention, L. E. Price and G. J. Thomas, 536
"Silvercote," Reflective Thermal Insulating Material, International Engineering Concessionnaires, Ltd., (78)
Singapore Wharf Extension, (175)
Sinking Long Pipes off Shore, San Francisco, (645)
Sintered Carbide Surfaces on Castings, (415)
Siphons Regulating Water Level, Walterville Hydro-Electric Plant, 624

SIXTY YEARS AGO:

Baker, William, L. and N.W. Railway, 700
Bidder, George Parker, 339
Boilers, The Design and Use of, F. J. Rowan, 226
Brayton's Hydro-carbon Engine, 76
Bristol University College and the Education of Engineers, 40
British Association, Dublin Meeting, 181
Carbon Microphone, Edison, Hughes and Preece Controversy, 89
"Destroyer," Captain J. Ericsson's Torpedo Vessel, 506
Diphtheria and Water Supply, 671
"Duilio," Powerful Italian Warship, 124
Edison and Electric Lighting, 392
Education of Engineers, Bristol University College, 40
Electric Lighting, 450, 559
Highways Bill, 1878, 124
"Humboldt," Lamport and Holt Liner, Explosion, 205
Industrial Conditions in 1878, 474
Lockyer, Sir Joseph Norman, on Decomposing the Elements, 644
Motion, The Laws of, 412
New York Metropolitan Elevated Railway, 89
Penn, John, 339, 361
"Popoffkas," Russian Circular Ironclads, 76
"Princess Alice," Thames Saloon Steamer, Sunk by "Bywell Castle," 252, 280, 542
Salisbury's Petroleum Burner, 616
Sittingbourne Disaster, London, Chatham and Dover Railway, 252
"Speedy," Gunboat, and Torpedo Boat Experiments, 40
"Steel," 317
Tay Bridge Undertaking, 89
Tradeston Flour Mills Explosion, 598
"Tubulous Marine Boilers," 12
Washburn Mill, Minneapolis, Explosion, 598
Whitwell, Thomas, 152

Skilled Labour Shortage in Shipyards, Richardsons, Westgarth and Co., Ltd., (149)
Skilled Labour, Watches and (Astronomer Royal's Report), 43
Smoke Abatement (Society's Report), (363)
Smoke Abatement Society, Annual Conference, 633
Smoke Density Measurements, H. E. Bumgardner, 372
Smoke, Industrial (Inspector of Alkali's Report), 31
Smoke Pollution in London, R. Lessing, 379
Snow Handling at Wold-Chamberlain Airport, Minneapolis, (501)
Social Centre, G. and J. Weir, Ltd., Cathcart, Glasgow, 558, 564
Social and International Problems and the Civil Engineer, R. D. Brown, 424; (Leading Article, 417)
Social Relations of Science, Committee, (652)
Societies—*see* Associations
Soda Recovery Plant for Paper Mills, H. W. Aitken Co., Ltd., 355
Soil Erosion, F. Newhouse, 497, 522
Soluble Cutting Fluid, "Sternopal," Sternol, Ltd., 89
Soot Blower Equipment, "XL" Type, Clyde Blowers, Ltd., 413
Soot Blowing Equipment for Works Boilers, British Thomson-Houston Co., Ltd., 76

SOUTH AFRICAN ENGINEERING NOTES:

Aerial Maps of the Union, 545
Aerial Survey of East Coast, 545
Branch Lines in the Union, 52
Brick Making, New System of, 184
Cape Town Harbour, 426
Cape Town Reclamation Work, 184, 292
Cape Town Steel Works, 545
Cape Town's New Power Station, 184
Dams, New Storage, at Prieska and Modder River, 292
Defence, Union, 425
de Havilland Plane Factory being Considered, 545
Dry Mining Methods, E. C. Ranson, 52
Dumping by America, 292
Electric Power Development, 52
Empire Exhibition (South Africa, 1936), 184
Factories, New, 52
Fuel Oil, Production of, 426
German Share of Union Trade, 426
Harbour Tonnages Drop, 655
Industrial Expansion in the Union, 426
Industrial Position, 655
Industries, New, 292
Iron Ore Field, Wolmaranstad, 426
Irrigation Plans, 545
"Iscor" Appointment (Mr. G. A. Jenkin), 52
"Iscor," Dismissal of Employees, 655

SOUTH AFRICAN ENGINEERING NOTES (*continued*):
"Iscor," Dr. van der Bijl Reappointed, 292
Lamp Factory, Electric, at Port Elizabeth, 52
Locomotives from Overseas, 545
Manganese Export Checked, 184
Manganese Industry Setback, 656
Mineral Resources, 52
Mineral Wealth, The Union's, 292
Mossel Bay Harbour, 52
Natal Electricity Development, 655
Otavi Copper Mines, 52
Paper Pulp Factory at George, 52
Pretoria Power Extensions, 545
Rails, Longer, Use of, 545
Railway Accidents, 52
Railway Earnings, 545
Railways' £10,000,000 Expenditure, 426
Rhodesia Prohibits Scrap Iron Export, 656
Rhodesian Coal Concessions, 656
Road Competition with Railways, 184
Roads Speed-up, 292
Sea Services, Speeding-up, 545
South African Railways, Inquiry Wanted, 655
Staurolite, Inquiries for, 184
Steel Dumping by U.S.A., 426
Table Bay Power Station, 656
Textile Factory, New, at Elsie's River, 52
Torbanite Production, 545
Tugs, Two New, for the Union, 184
Tugs for the Union, Ordered from Clyde, 426
Undertakings, New, 184, 292
Westinghouse Electrical International Co., Proposed Retail Stores, 184
South African Mineral Production, (290)
South Wales Aluminium Co., Ltd., New Factory, (563)
Soya Bean Oil as Fuel for Engines, 208
Special Areas, Progress in, 109
Special Areas in Scotland, (201)
Specifications *versus* Contract, 160
Speed Record, New Land, G. E. T. Eyston, (13), (253), (335)
Spirit Level, A Universal, P. Philipp, 343
Spraying, Metal, A New Method of, Schori Metallising Process, Ltd., 318
Squeeze Riveters, Yokes for, Broom and Wade, Ltd., 596
Stackers, 40ft. Sack, Spencer (Melksham), Ltd., 625
Stacking Machine, Electro-hydraulic, J. Collis and Sons, Ltd., 414
Staff Locator, An Electrical, Gent and Co., Ltd., 182
Static Equilibrium, The Use of the Principle of Minimum Potential Energy in Problems of, D. Williams, 624
Status of the Engineer, H. Chatley, 489
Staurolite, Inquiries for, in South Africa, 184
Steam Plough Cultivation, Memorandum on, 217
Steam Sterilising Chest, General Electric Co., Ltd., 39
Steam Turbine Unit, Model of 3500 S.H.P. Geared, Parsons Marine Steam Turbine Co., Ltd., 199
Sterilising Chest, Steam, General Electric Co., Ltd., 39
"Sternopal," Soluble Cutting Fluid, Sternol, Ltd., 89
Stills, Tar Distillation, Nickel Cast Iron for, Mond Nickel Co., Ltd., 129
Stockholm Port Improvements, (309)
Stoker, "Combustioneer," Automatic Mechanical Coal, Mirrlees, Bickerton and Day, Ltd., 274
Stoker, "Mastoker" Underfeed Automatic, Prior Burners, Ltd., 413
Stoker, Sprinkler Mechanical, J. and J. Neil (Temple), Ltd., 440
Stokers, "Clyde" Automatic Coal, Clyde Fuel Systems, Ltd., 5
Stokers, Mechanical, on Locomotives, E. H. Livesay, 207
Stokers, Mechanical, on Ships, Direktor Ing. Schneider, (533)
Stone-crushing and Screening Plant, Goodwin, Barsby and Co., Ltd., 570
Stone Quarry, New Cornish, Messrs. Gilsons, 570
Stove, Factory Heating, Tangyes, Ltd., 682
Strainers, Rotary Water, at Clarence Dock Power Station, Hick, Hargreaves and Co., Ltd., 461
Strake, Spiral, Kennedy and Kempe, Ltd., 99
Strength of Materials, The Molecular Basis of the, Sir W. Bragg, 572; (Leading Article, 565)
Stress in Castings, Relief of Internal, L. E. Benson and H. Allison, 23
Stresses Around Galleries in Concrete Dams, I. E. Houk, 382
Streasing the Struts of Stiff-jointed Framework, An Approximate Method of, J. B. B. Owen and J. Taylor, 145
Strike, An Inexcusable (L.M.S. Railway), 445
Strike Outbreak, The French, 631, 661
Structures, Settlement of, A. W. Skempton, 329
Students, Vacation Employment for (National Union of Students), 626; (Letter, 672)
Subsidies, Industrial, (149)
Sugar Factory, Model, at Glasgow Exhibition, 330
Sugar Mill Roller, "Keyless" Type, A. and W. Smith, Ltd., 333
Sugar Subsider, Mirrlees Watson Co., Ltd., 356
Sulphuric Acid Plant, A New Contract, at Abbey Mills Chemical Works, Simon-Carves, Ltd., 478
Summer School for Engineers, 57

SUPPLEMENTS:
"Amra," British India Steamship, Boiler Installation, Swan, Hunter and Wigham Richardson, Ltd. (Supplement, December 16th, 1938)
Dalmarnock Power Station, 50,000-kW Turbo-alternator, C. A. Parsons and Co., Ltd. (Supplement, July 15th, 1938)
Inglis, Dr. C. E., Pencil Portrait No. 18 (Supplement, November 11th, 1938)
"Mauretania," Cunard White Star Twin-screw Liner, Cammell Laird and Co., Ltd. (Supplement, August 5th, 1938)
THE METALLURGIST (Sixteen-page Supplement, August 26th, 1938; October 28th, 1938; December 30th, 1938)—*see* Index, page xix

SUPPLEMENTS (*continued*):
Pretoria Reflector Telescope, 74in., Sir Howard Grubb, Parsons and Co. (Supplement, September 16th, 1938)
"Queen Elizabeth," Cunard White Star Quadruple-screw Liner, John Brown and Co., Ltd. (Supplement, September 23rd, 1938)
Surface Treatment, The Control of Magnetic Quality by, 474, 731
Surface Treatment for Piston Rings, British Piston Ring Co., Ltd., (117)
Survey, Ordnance, Final Report of Committee, 519
Swan, Hunter and Wigham Richardson, Ltd., Resignation of J. Denham Christie, (335)
Swath Turner, Harrison, McGregor and Co., Ltd., 99
Swath Turner, W. N. Nicholson and Sons, Ltd. 97
Swedish Technical Museum, Iron Mine Exhibit, (701)
Syrens, Air Raid Warning, Gent and Co., Ltd., 571

T

"TANGENT" Staff Locator, Gent and Co., Ltd., 182
Tank, Large Hot Water Storage, "Everdur," A. McAra, 20
Tanks, Concrete Petrol, La Paroi Hydraulique, 732
Tap, The "Camac," Stewarts and Lloyds, Ltd., 386
Tar Distillation Stills, Nickel Cast Iron for, Mond Nickel Co., Ltd., 129
Tar Surfaces, Improved Road, Sir D. Milne Watson, 519
Tars, Hydrogenation Cracking of, (335)
Tasmania, Transport in, (335)
Team Valley Trading Estate, 719
Technical and Economic Developments in Electrical Engineering, S. B. Donkin, 50

TECHNICAL REPORTS:
Accelerations, Measurements of, at Different Parts of a Boat Seaplane during Take-off and Landing, G. C. Abel, 624
"Airspeed Envoy," Type A.S.6 G., Full-scale Tests of the, J. E. Serby, R. H. Francis, and P. Fortescue, 624
Boundary Layer Flow, Visual and Photographic Methods of Studying, H. C. H. Townend, 70
Chromium Plating upon Tin-plate, 546
Climatological Normals for Egypt and the Sudan, Cyprus and Palestine, 145
Diffusion of Load in Certain Sheet-Stringer Combinations, W. J. Duncan and H. L. Cox, 644
Drag, The Determination of, by the Pitot Traverse Method, G. I. Taylor, 120
Galerkin's Method in Mechanics and Differential Equations, W. J. Duncan, 70
Gust Loads on Tails and Wings, D. Williams and J. Hanson, 120
Landing Flaps, Review of Some Full-scale Tests on, J. E. Serby, 120
Mahoganies, Commercial, B. J. Rendle, 36
Manganese, A. W. Groves, 546
Nickel Silver, T. F. Pearson, 36
Poisonous Gases in Industry: Hydrogen Cyanide (Prussic Acid) Vapour, 145
Pressure Losses for Fluid Flow in 90 deg. Pipe Bends, K. H. Beij, 624
Relaxation Methods Applied to Grid Frameworks, D. G. Christopherson, 145
Static Equilibrium, The Use of the Principle of Minimum Potential Energy in Problems of, D. Williams, 624
Stressed-skin Structures, Compression Tests of Panels with Tubular Stiffeners, I. J. Gerard and B. G. Dickens, 644
Stressing the Struts of Stiff-jointed Framework, An Approximate Method of, J. B. B. Owen and J. Taylor, 145
Wind Tunnel Tests and Charts of Airscrew and Negative Thrust, C. H. N. Lock, H. Bateman, and H. L. Nixon, 145

TELEGRAPHY AND TELEPHONY:
Cable-laying Developments, Atlantic, 165
Channel Islands Telephone Cable, (253)
Conductor Wires for Telephones, (309)
"Loudspeakerphone" Remote Control of Wortley Gasholder Station, (677)
Photo-telegraphic Lines for Moscow, (363)
Telecommunication Developments in Scotland, 297
Telephone Equipment, Rail Transport of, from Coventry to Glasgow, (645)
Telephone Exchange, Automatic Mobile, (93), 663
Telephone Line, A Long, Between Moscow and Khabarovsk, (208)
Telephones, Automatic, for London's Underground Railways, (121)
Telephones for Ships in London Docks, (201)
Television Telephone Service Between Berlin and Munich, (93)
Weather Reports by Telephone, (93)

Telescope, Insulation for the World's Largest, at Mount Palomar, California, (149)
Telescope, 74in. Reflecting, for Radcliffe Observatory, Pretoria, Sir Howard Grubb Parsons and Co., 298, 326, 336, 353, 364 (*Supplement, September 16th*, 1938)
Television—*see* Wireless
Tellurium, Tin Toughened by, D. Hanson and W. T. Pell-Walpole, (591)
Terminology, Scientific and Technical, 255
Testing Machine, An Oil and Bearing, "Admiralty" Pattern, Sir W. H. Bailey and Co., Ltd., 209
Testing, Non-destructive, General Discussion, 451, 620, 626; (Leading Article, 619)
Testing, Non-destructive, in Germany, R. Berthold, (617)
Text-books, 365; (Letter, 538)
Textile Factory at Elsies River, South Africa, 52
Textile Wastes, Treatment of, 714
Thames, Colour of the, (67)
Thames Conservancy Board, Retirement of G. J. Griffiths, 551
Thames Embankment Scheme, New, 551
Thames, The Flow of the, 405
Thames, Low Level of the, (563)
Theoretical Discharge of Air from Ports in a Duct, W. S. Brown, 587, 610
Thomas, Richard, and Co., Ltd., and Ebbw Vale, 31
Three Years' Plan, The French, 593
Threshing Machine, Marshall, Sons and Co. (Successors), Ltd., 125
Timber Construction, American, 346
Timber, Decay of, and its Prevention, (673)
Timber, Pit, from Canada, (335)
Timber Research, Annual Report, 217
Timber Yard Crane, R. H. Neal and Co., Ltd., 282, 288
Tin, Antimony's Effect on the Strength of, D. Hanson and W. T. Pell-Walpole, (533)
Tin, Baths for Electro-plating of, (733)
Tin and Bismuth, Alloying of, A. C. Davidson, (175)
Tin Consumption Analysis, The World's, (41), (149), (533)
Tin-plate, Chromium-plating Upon, 546
Tin-plates, Liquid Formation on, P. Rocquet, (591)
Tin Research Laboratories at Greenford, (174)
Tin Toughened by Tellurium, D. Hanson and W. T. Pell-Walpole, (591)
"Titegrip" Rotary Milling Cutters, F. Gilman (B.S.T.), Ltd., 569
Torbanite Production, South African Torbanite Mining and Refining Co., Ltd., 546
Townend, Dr. D. T. A., Appointed Livesey Professor of Coal, Gas, and Fuel Industries, Leeds University, (13)
Traction, Forest Gas for, 230
Tractor, Agricultural, 14·35 B.H.P., Bristol Tractors, Ltd., 39
Tractor, Agricultural, "B" Type, Pneumatic-tyred, Allis-Chalmers Manufacturing Co., Ltd., 39
Tractor, Agricultural, "W.14," International Harvester Co., Ltd., 39
Tractor, Challenger Streamlined Harvesting, Massey-Harris, Ltd., 125
Tractor and Cultivator, Four-cylinder, 20 B.H.P., Ferguson-Brown, Ltd., 99
Tractor with Gohin-Poulenc Producer Gas System, British Gazogenes, Ltd., 73
Tractor Running on Producer Gas, Latil Industrial Vehicles, Ltd., 72
Tractor Works, Huddersfield, Ferguson-Brown, Ltd., 729
Tractors, "Bulldog" Oil-engine-driven, Lanz Tractor Co., Ltd., 126
Tractors, Oil-engine-driven Agricultural, Marshall, Sons and Co. (Successors), Ltd., 125
Trade, Export, and the Future, 489
Trade, Franco-British, 135
Trade, Foreign, Propaganda and (Craven Machine Tool *Gazette*), 10; (Leading Article, 16)
Trades Union? What is a, 70
Trading Estates, New Scottish, 137
Traffic Commissioners, Western Area, (505)
Traffic Control, Automatic Road, L. M. Ericsson Co., (617)
Training Employers in France, 577
Training of Engineers, D. E. Roberts (I. Mech. E. Presidential Address), 464; (Leading Article, 473)
Tramcars in Manchester, Replacement by Trolleybuses, (253), (309)
Transport, G. S. Szlumper, 543
Transport in America, (733)
Transport, Co-ordination of, G. S. Szlumper, 405
Transport (Defence) Advisory Committee, (415)
Transport in Glasgow, Five-year Plan, (590)
Transport, Northern Ireland, 607, (617)
Transport, World, 565
Trigonometrical Set Square, A. G. Thornton, Ltd., 343
Trolleybuses for Durban, (67)
Trolleybuses, Suppression of Radio Interference Caused by, J. E. M. Coombes, 232
Truck, 20-ton Implement, P. and W. MacLellan, Ltd., 439
Trucks, Lifting, J. Collis and Sons, Ltd., 414; (Correction, 440)
Tube Mill, Air-swept, for Pulverising Coal, Sheepbridge Coal and Iron Co., Ltd., 87
Tube Wells and Electric Development in India, J. M. Lacey, 554
Tube Works Extension, Chesterfield Tube Co., Ltd., 672

TUNNELS:
American Highway Tunnels, 624
Blackwall Tunnel, The New, 633
Channel Tunnel, 81
Colorado River Aqueduct Tunnels, (673)
Dartford and Purfleet Tunnel, 379; Approach Road, (415), (645)
Génissiat Dam, River Rhône, Diversion Tunnels, 722, 734
Krangede Hydro-electric Power Scheme, Tail Race Tunnel, 245
Moffat Tunnel, Colorado, Rail Corrosion, (501)
New York Subway Work, (389)
Tancarville Tunnel under the Seine, ("A Bridge and Tunnel Controversy"), 377
Tyne Tunnel, Proposed, (591)
Westchester Sewer Tunnel, New York, Specifications *versus* Contract, 160

Turbine, Impulse and Reaction Single-cylinder for Clarence Dock Power Station, Richardsons, Westgarth and Co., Ltd., 461
Turbine Unit, 3500 S.H.P. Geared Steam, Model, Parsons Marine Steam Turbine Co., Ltd., 199
Turbines, "Simplex Unit," Parsons Marine Steam Turbine Co., Ltd., 438
Turbines, Water, 150,000 H.P., for Grand Coulee Power Project, (733)
Turkish Black Sea Port, Proposed, at Tchatalazi, (389)
Twist Drills, The Cutting Angle of, G. Schlesinger, 650
Tyn Plywood Works, Willington Quay, (13)
Tyne, Development of, from Early Times, T. Russell Cairns, 483

U

UNDERPRODUCTION in France, 577
Underground Planning, E. J. Goodacre, The Buried City, 283
Unemployment, World Statistics, (415)
United States, Fuel Trends in the, (617)
University, The Challenge to the, National Union of Students, (The Moral of Meal Monday), 647; (Letters, 700, 731)
Uttoxeter Sewage Disposal Works, 459

V

VACATION Employment for Students, National Union of Students, 626; (Letter, 672)
Valve, "Newman Milliken" Glandless Lubricated Plug, Newman, Hender and Co., Ltd., 306
Valve Upsetting Machine at A.E.C. Southall Works, Marryat and Place, Ltd., 680
Variable-speed Drive, "Pk" type, Wm. Prym, 212
Variable-speed Gear Drives, Crofts (Engineers), Ltd., Hansel and Schmitt, Ltd., J. Stone and Co., Ltd. and H. Wallwork and Co., Ltd., 634
Variable-speed Pulleys, Crofts (Engineers), Ltd., 608
Velocity Profiles and Flow of Fluids through a Contracted Pipe Line, F. V. A. E. Engel and A. J. Davies, 720
"Velometer," Direct-reading Air Velocity Meter, Metropolitan-Vickers Electrical Co., Ltd., 88, 571
Ventilating Fans for Ships, Thermotank, Ltd. 385
Vermilion Bay, America, Fight with an Oil Well, W. F. Chisholm, 532, 534
Vibrating Screen, "Ty-Rock," International Combustion, Ltd., 63
Vibration in Ships and Aircraft, B.A. Discussion, 307
Vibration of Structures, Determining Natural Modes of, H. C. Hayes and E. Klein, 682
Vibrometer, A Moving-coil, G. O. Eccles, 232
Victory Museum, Portsmouth Dockyard, Opened, (121)
Viscous Flow Air Meters, Ricardo and Co., Engineers (1927), Ltd., 743
Vocabulary, International Electrotechnical, 542

W

WARD, Thos. W., Ltd., Sixty Years' Service 1878–1938, (658)
Ward's Island Sewage Works, New York, 555; Sludge Vessels, 586
Warfare, Science and, Lord Rayleigh, 204; (Leading Article, 204)
Washing Machine for Meter Parts, Metropolitan-Vickers Electrical Co., Ltd., 510
Waste Wood, Paper from, H. R. Petersen, R. J. Hart, and T. L. Crossley, (93)
Watches and Skilled Labour, Astronomer-Royal's Report, 43
Watches, Testing of, (201)
Water Gas Plants, Automatic Operator for, Henry Balfour and Co., Ltd., 285
Water Softening Material, A New, R. Riley, (426)
Water Softening Plant, Newnham Pumping Station, W. Boby and Co., Ltd., 480

WATER SUPPLY:
Boston, U.S.A., Water Supply, (415)
Central Advisory Water Committee, First Report, 57; (Leading Article, 70)
Chinese Conservancy Committees, 208
Coventry Water Supply, 351, (617)
Croydon Water Supply Acquired by Metropolitan Water Board, 489
Earthing Electrical Installations to Water Pipes and Mains, 210
George, South Africa, Water Scheme, 292
Glasgow Water Supply, (281)
Green Sand, Lower, Water Bores at Slough, Le Grand Sutcliff and Gell, Ltd., (25)
Karachi, India, Water Supply of, D. B. Adwani, 588
Liverpool Water Supply, Vyrnwy, (389)
London Water Supply Statistics, (591)
Metropolitan Water Board, Annual Report, 595; New Laboratories, 431; Retirement of Mr. F. E. F. Durham, 719
Newnham Pumping Station, Water-softening Plant, W. Boby and Co., Ltd., 480
Rand Water Board, 373
Reservoir, Unusual Form of, at Cassis, France, Chabal et Cie., 236
Toledo Water Supply, Strengthening a Concrete Conduit, (533)
United States Water Supply, (200)

Wear Navigation, (363)
Weather Reports by Telephone, (93)
Weaver Viaducts, Reconstructing the, 551
Wedgwood Factory, The New, (227), 297
Weighing and Rationing Machine, "Feedright," Alfred Herbert, Ltd., 98
Weir, G. and J., Ltd., New Social Centre, Cathcart, Glasgow, 558, 564

WELDING:
Arc-welded Pressure Vessels, (121)
Arc Welding Machine, Automatic, Metropolitan-Vickers Electrical Co., Ltd., 670
Atomic Hydrogen Welding Equipments, Metropolitan-Vickers Electrical Co., Ltd., 88
Boiler, Auto-Stoke "W" Type, Welded Steel, Charles McNeil, Ltd., 6
Bridge Superstructure, Long Welded, Over St. Anne River, Quebec, (281)
Collingwood Shipyard, Ontario, Welding Experiment, 212

WELDING (*continued*):
Electrodes, Approved, for Arc Welding, (533)
Fusion Welded Boilers, British Corporation Rules for, 165
Fusion Welded Pressure Vessels, John Thompson Engineering Co., Ltd., 469
Gasholder, Welded Waterless, for Ford Motor Co., Horseley Bridge and Thomas Piggott, Ltd., 127
Generator, Welding, Laurence Scott and Electromotors, Ltd., 682
Lincoln Arc Welding Prize, (389)
Resistance Welder, A Large, British Insulated Cables, Ltd., 510
Split Pulley, "Destron" Welded Steel, for Belt Drives, Douglas Lawson and Co., Ltd., 510
Spot and Projection Welding, J. L. Miller, 693
Stresses in Welded Pipes, S. J. Palmer, 329
Tanker, American All-welded, "Dolomite-4," (363)
Welding Research, Sir William Larke, 431
Welding Steel to Cast Iron, Barimar, Ltd., (78)
Welfare in Industry, 579
Westinghouse Electrical International Co., Retail Stores in South Africa, 184
Wharf Structures of Steel Sheet Piling, Some Canadian, R. F. Legget, 270, 301
What is a Trades Union? 70
Winch, Portable, Fishleigh Rotary Cultivator Co., Ltd., 72
Winding Plant, New Continental, S. A. John Cockerill, 74
Wire Drawing Machine, George Christie, Ltd., 438
Wire, Fine Aluminium, (13)
WIRELESS:
Aberdeen Broadcasting Station, (309)
Australian Wireless Stations, New, (281)
Belgian Radio Station, New, (501)
Broadcasting House Extensions, (175), (701)
Empire Wireless Chain, Cables and Wireless, Ltd., (645)
Italian Railways, Radio Communication, (227)
Oil Engines in B.B.C. Stations, L. Hotine and P. H. Smith, (471)
Paget, P. W., Retirement from Marconi Company, (149)
Post Office Radio Station near Rochester, (335)
Radio Echo Altimeter, Bell Telephone Laboratories, (617)
Railway Shunting, Wireless Control in, Swedish State Railways, (533)
Rickard, C., Retirement from Marconi Co., (149); (Correction, 175)
Royal Air Force, Civilian Wireless Reserve, 269
WIRELESS (*continued*):
Television, Sir Noel Ashbridge (Hawksley Lecture), 526
Television, The Future of, A. G. D. West, (501)
Television Mobile Aerial Unit, Merryweather and Sons, Ltd., (201)
Television Telephone Service between Berlin and Munich, (93)
Trolleybuses, Suppression of Radio Interference Caused by, J. E. M. Coombes, 232
Tynemouth Wireless Beacon, (149)
Women Engineers in France, 487
Wood, Dry Rot in, 351
Wood, Moisture in (D.S.I.R. Report), (363)
Wood, Reinforced, as a Structural Material, C. D. Phillipe, (645)
Wooden Poles in Transmission Line Service, S. R. Siviour, (617)
Wood-faced Laminated Material, Bakelite, Ltd., 742
Woodworking Machinery, T. Robinson and Son, Ltd., 562
Words and the Engineer, 735
Work and Leisure in Industry, A. P. Young, 83
Work, A Plea for, in France, 187
Working Hours in France, 163, 295, 605
Workmen's Compensation Acts Inquiry, 1
Works Equipment in France, 349
Works Management Education, From, to Works Management, T. H. Burnham, 158, 183
Workshops in China, 574
World Peace, Engineers and, A. C. Gardner, 480
World Power Conference, Vienna, 165
World Transport, 565
Wortley Gasholder Station, Remote Control of, by Ediswan "Loudspeakerphone," (677)

X

X-RAY Equipment, High-tension, National Research Council of Canada, 746
X-Ray Structure, Magnetic Alloys and (B.A. Discussion), 330

Y

YOKES for Squeeze Riveters, Broom and Wade, Ltd., 596
Yorkshire Gas Grid, 689, 719, (733)

Z

ZEISS Improved Toolmakers' Microscope, Alfred Herbert, Ltd., 477
Zinc Roll Cap Roofing, (562)
Zuyder Zee Dyke Damage, (443)

A Seven Day Journal

A

AEROPLANE Test, An Overload ("Albatross"), 243
Agricultural Engineer, The British, P. Johnson, 689
Ahearn, Hon. Thomas, The Late, 1
Air Industry, The Western, 243
Air Ministry Appointments, 1
Air Raid Shelters, 297
Aircraft Construction, New, 137
Aircraft Factories, New Government, 83
Airports, Two New Provincial (Manchester and Wolverhampton), 1
Albert Canal, Belgium, 269
Aldgate East Station, The New, 489
Alkali Works, Report of Inspector of (Industrial Smoke), 31
Anglo-American Trade Agreement, The Electrical Industry and the (B.E.A.M.A. Statement), 689
Anglo-German Industrial Discussions, 719
"Asama Maru," Nippon Yusen Kaisha Liner, 351
Atlantic Cable-laying Developments, 165
Atmospheric Pollution, 607
Automobile Development, P. C. Kidner (I.A.E. Address), 379
Automobile Research (Inst. A.E. Report), 351

B

BALLOON Barrage, London, 269
Basic Road Statistics, 109
Bell, An American Locomotive, 57
Bituminous Coal, Active Carbon from 249
Blackwall Tunnel, The New, 633
Boilers, Fusion Welded, Rules for, 165
Bristol, New Bridge, 579
Bristol Steam Shipowners' Association, Annual Dinner, 607
British Association and the Social Relations of Science, 243
British Cast Iron Research Association, Annual Report, 663
British Coal Utilisation Research Association, 689
British Merchant Shipping, 607
British Oil Engines and Shipyard Orders, 1
British Road Tar Association, Annual Meeting, 519
British Shipping in the Pacific, 109
Brush Electrical Engineering Co., Ltd., Loughborough Factory Reorganisation, 719
Building Exhibition, 325

C

CABLE-LAYING Developments, Atlantic, 165
Calcium Carbide Factories, 137
"Canton," P. & O. Liner, Alexander Stephen and Sons, Ltd., 379
Carbon, Active, from Bituminous Coal, 249
Central London Railway Extension, 519
Charing Cross (District Line), Accident Report, 325
Civil Air Guard Commissioners, 217
Civil Aviation, Report on, 379
Civil Aviation Subsidies, 663
Clerk, Dugald, Lecture (Inst. C.E.), W. A. Tookey, 663
Coal Commission, Constitution, 137
Coal Mines, Electricity in, Annual Report, 269
Coal Mines, Safety in, Royal Commission's Report, 689
Coal and Oil Research, 325
Coal, The Use of, in Mercantile Ships, 109
Coal Utilisation Research, 489
Coastwise Shipping, Report on, 405
Colombo, New Graving Dock, 83
Co-ordination of Transport, G. S. Szlumper, 405
Coventry's Water Supply, 351
Crompton, Colonel R. E., Diamond Jubilee, 57
Croydon Water Supply Acquired by Metropolitan Water Board, 489
"Cubahama," Fast Coastal Liner (Henry Robb, Ltd.), 217
Cuban Merchant Marine, 269
Cutlers' Feast, The, 431

D

DARTFORD and Purfleet Tunnel, 379
Darwin, Dr. C. G., Appointed Director, N.P.L., 405
"Dominion Monarch," Shaw Savill Motor Liner, Launch, 137
Dry Rot in Wood, 351
"Durban Castle," Union Castle Liner, Harland and Wolff, Ltd., 719
Durham, F. E. F., Retirement from Metropolitan Water Board, 719

E

EBBW Vale, Richard Thomas and Co., Ltd., and, 31
Eckersley, Dr. J., Principal of Manchester College of Technology, 83
Electrical Industry and the Anglo-American Trade Agreement (B.E.A.M.A. Statement), 689
Electricity Charges, London and Home Counties Authority, 297
Electricity in Coal Mines, Annual Report, 269
Electricity Supply, Home Counties, 663
Empire Flying Boats, Flare Path for, 351
Employment Returns, Ministry of Labour, 31, 165, 249, 379, 519, 633
Engineer, The Status of the, H. Chatley, 489
Engineering Firms and Rearmament, 31
Engineers and Export Trade, W. Paterson, 243
Estuary Bridge Schemes (Humber, Forth, and Severn), 137
"Ettrick," P. & O. Troopship, Barclay Curle and Co., Ltd., 719
Experimental Work on Roads, 607
Export Trade, Engineers and, W. Paterson, 243
Export Trade and the Future, 489
Export Trade, Prices and, 459

F

FACTORIES Act, 1937, 57, 297
Factories, Lighting in, 607
Factory Inspector's Report, Sir Duncan R. Wilson, 165
Federation of British Industries, Industry and Defence Committee, 579
Fen Drainage Proposal, 189
Flare Path for Empire Flying Boats, 351
Floods in the East, 243
Flying Boat Base at Southampton, 137
Flying, The Control of, 489
Forest Products Research Board, Annual Report, 217
Forth Estuary Bridge Scheme, 137
Froude, William, Laboratory, Annual Report, 431
Fuel Research Board, Annual Report, 689
Fusion Welded Boilers, Rules for, 165

G

GAS Engineering as a Career, Sir F. West, 297
Gas Grid, New Yorkshire, 689, 719
Geological Museum, New Rotating Globe, 405
German Naval Plans, 217
Globe, New Rotating, at Geological Museum, 405
Goole Docks Improvements, 31
"Graf Zeppelin L.Z.130," The New Airship, 325
Grand Union Canal Developments, 459
Graving Dock, New, at Colombo, 83
G.W. Railway, Paddington Signal-box Fire, 607
Gregory, Sir Richard, Retirement from *Nature*, 579
Griffiths, G. J., Retirement from Thames Conservancy Board, 551

H

HAMMERSMITH Bridge Repairs, 165
Holywell, N. Wales, Calcium Carbide Factory Scheme, 137
Humber Estuary Bridge Scheme, 137
"Hydrogap," New Type of Rudder, 405

I

IMPERIAL Airways, Ltd., Annual Meeting, 551
"Implacable," Aircraft Carrier, Ordered from Fairfield Shipbuilding and Engineering Co., Ltd., 405
Indian Locomotive Inquiry, 109
Industrial Smoke (Report of Inspector of Alkali Works), 31
Industrial Welfare Society, Annual Meeting, 579
Industry and Defence, F.B.I. Committee, 579
Institute of Petroleum, Annual Dinner, 663
Institution of British Agricultural Engineers, Formation, 579
Institution of Mechanical Engineers' Dinner, 459
Institution of Mechanical Engineers, N.W. Branch Dinner, 633
Iron and Steel, The Stocks of, 243

K

"KELVIN," Atlantic Cable-laying Ship, 165

L

LABOUR, The Movement of, 325
Lancashire Road, A New, St. Helens and Southport, 405
Lancashire's Transport Problem, 31
Laundry, An Experimental, British Launderers' Research Association, 633
Lighting in Factories, 607
Lightning Causes Train Stoppage on Southern Railway, 31
Liners, Pacific, Postponed Orders for, 243
"Lion," An Old Locomotive, 243
Location of Industry, Royal Commission on, 551
Locomotive Bell, An American, 57
Locomotive Inquiry, Indian, 109
London Balloon Barrage, 269
London and Birmingham Railway Centenary, 325, 551; (Leading Article, 337)
London Building Acts, Amendment of the, 83
London General Shipowners' Society, Annual Meeting, 109
L.M.S. Railway, London and Birmingham Railway Centenary, 325, 551; (Leading Article, 337)
L.M.S. Railway, Monsal Dale Viaduct, 57
L.M.S. Railway, Oakley Junction Disaster Report, 165
L.M.S. Railway, An Old Locomotive, ("Lion"), 243
L.N.E. Railway, Sir Ronald Matthews Elected Chairman, 379
London Passenger Transport Board Report, 489
London Underground Railway Improvements 189

M

MANCHESTER Aircraft Factory, New, A. V. Roe and Co., Ltd., 189
Manchester Airport, 1
Manchester College of Technology, Dr. J. Eckersley Appointed Principal, 83
Markham Colliery Disaster, Report on, 459
Matthews, Sir Ronald, Elected Chairman, L.N.E.R., 379
Mechanisation in Mines, 109
Mercantile Ships, The Use of Coal in, 109
Merchant Shipping, British, 607
Metropolitan Water Board, Croydon Water Supply Acquired, 489
Metropolitan Water Board, New Laboratories, 431
Metropolitan Water Board, Retirement of Mr. F. E. F. Durham, 719
Midlands, S.W., Electricity District, Report, 137
Mines Department Reports, 459
Mines, Safety in, Annual Report, 269
Mining Research Laboratory Report, 719
Modern Roads Movement, 431
Mond, Sir Robert, The Late, 459
Monsal Dale Viaduct, L.M.S. Railway, Strengthening, 57
Morris, Professor J. T. MacGregor, Retirement of, 31
Motor Industry of Great Britain, 31
Museums, National, 325

N

"NALDERA," P. & O. Liner, to be Broken Up 579
National Physical Laboratory, Dr. C. G. Darwin Appointed Director, 405
Neon Signs for Measured Mile Posts, 405
New South Wales Electrical Development Scheme, 1
"Normandie," The Hundredth Crossing, 83
Northern Ireland Transport, 607

O

OAKLEY Junction Railway Disaster Report, 165
Oil Drilling in Great Britain, G. W. Lepper, 519
Oil Engines, British, and Shipyard Orders, 1
Ordnance Survey, Final Report, 519
Overload Aeroplane Test ("Albatross"), 243

P

PADDINGTON Signal-box Fire, 607
Parker Dam, America, Completion of, 57
Petters, Ltd., 297; Reorganisation at Loughborough, 719
Pit Heap Fires, 633
Port of London Authority, Annual Report, 217
Port of London Authority, Mr. J. D. Ritchie, General Manager, 379
Port Talbot Calcium Carbide Factory Scheme, 137
Prices and Export Trade, 459
Producer Gas for Vehicles and Ships, 519
Production Engineering Research, 459
Profit-sharing in 1937, 83
Public Health Exhibition, 551

Figures in Brackets ( ) refer to paragraphs. Key to Index, page iii.

Q

"QUEEN ELIZABETH," Cunard White Star Liner, 189, 351
"Queen Mary," Cunard White Star Liner, New Atlantic Record, 165, 189

R

RAILWAY Charges for Merchandise Traffic, 663
Railway Statistics, Ministry of Transport, 297
Raworth, Mr. A., Appointed Chief Electrical Engineer, Southern Railway, 351
Rearmament, Engineering Firms and, 31
"Research," Royal Research Ship, 189
Ritchie, Mr. J. D., General Manager, Port of London Authority, 379
Road Goods Transport and National Emergency, 351
Road Policy, British (S.M.M.T. Dinner), 431
Road Research Report, 489
Road Statistics, Basic, 109
Road Tar Surfaces, Improved, 519
Roads, Experimental Work, 607
Roads Movement, Modern, 431
Rosyth Dockyard, 633, 663
Royal Air Force, Civilian Wireless Reserve, 249
Royal Air Force Development Flight ("Wellesley" Aircraft), 57
Royal Air Force Expansion, 1
Rudder, A New Type of ("Hydrogap"), 405

S

SAFETY in Coal Mines, Royal Commission's Report, 689
St. Helens and Southport Road, Lancashire, 405
Saklatvala, Sir Nowroji, The Late, 109
Scottish Trading Estates, New, 137
Severn Estuary Bridge Scheme, 137
Sheffield Metallurgical Laboratory, The Admiralty, 689
Shipbuilding Employers' Federation, Annual Meeting, 551
Shipping Problems, British, 109
Ships, A Reserve of, P. Haldin, 633
Shipyard Orders, British Oil Engines and, 1
Shrewsbury School, New Laboratories, 351
Smoke Abatement Society, Annual Conference, 633
Smoke, Industrial (Report of Inspector of Alkali Works), 31
Smoke Pollution in London, R. Lessing, 379
Social Relations of Science, British Association and, 243
Southampton Flying Boat Base, 137
Southern Railway, Mr. A. Raworth Appointed Chief Electrical Engineer, 351
Special Areas, Progress in, 109
Southern Railway Train Stoppage Caused by Lightning, 31
Status of the Engineer, H. Chatley, 489
Steam Drifters Redesigned, F. H Todd, 519
Steam Plough Cultivation, 217
Summer School, in Manchester, for Engineers, 57
Switchgear, Testing Electrical, 431

T

TEAM Valley Trading Estate, 719
Telecommunication Developments in Scotland, 297
Telephone Exchange, Automatic Mobile, 663
Testing Electrical Switchgear, 431
Thames Conservancy Board, Retirement of G. J. Griffiths, 551
Thames Embankment Scheme, New, 551
Thames, The Flow of the, 405
Thomas, Richard, and Co., Ltd., and Ebbw Vale, 31
Timber Research, Annual Report, 217
Torpedo Boats, New Motor, Ordered by Admiralty, 189
Tower Bridge Repairs, 165
Trans-Iranian Railway, 217
Transport, Road Goods, and National Emergency, 351

U

ULSTER Aircraft Works Extensions, 189
Underground Traffic Control, 83
Union-Castle Ships, Repowering, 379
Uttoxeter Sewage Disposal Works, 459
Uxbridge Station, The New L.P.T.B., 607

V

VOLTAGE Standardisation, Sir Cyril Hurcomb, 379

W

"WARWICK CASTLE," Union-Castle Liner, Repowering, Harland and Wolff, Ltd., 379
Water Committee, Central Advisory, First Report, 57
Weaver Viaducts, Reconstructing the, 551
Wedgwood Pottery Factory, The New, 297
Welding Research, Sir William Larke, 431
Welfare in Industry, 379
"Wellesley" Aircraft Development Flight, R.A.F., 57
Western Air Industry, 243
Whitley Bay Measured Mile, Neon Signs, 405
Wireless Reserve, R.A.F. Civilian, 249
Wolverhampton Airport, 1
Wood, Dry Rot in, 351
Work and Leisure in Industry, 83
Workmen's Compensation Acts Inquiry, 1
World Power Conference, Vienna, 165

Y

YORKSHIRE Gas Grid, A New, 689, 719

The Metallurgist

Sixteen-Page Supplement, August, October, and December, 1938

AUGUST ISSUE (26.8.38).

Beryllium and its Alloys
Boron, The Effect of, on Nickel Steels
Cast High-chromium Manganese Steel
Corrosion of Steels Containing Tin
Critical Cooling Rates
Flakes in Steel
Hydrogen, The Action of, on the Carbides of Iron and Chromium
Iron, The Effect of, on Magnesium, W. R. D. Jones
Thermal Conductivity of Iron and Steel
LETTER TO THE EDITOR:
Cracking of Steel in Ammonium Nitrate Solutions, W. Andrews

OCTOBER ISSUE (28.10.38).

Ageing, Part I, M. L. V. Gayler
Fluidity of Liquid Metals
Galvanising Practice and Galvanised Steel, E. J. Groom
Melting Point of Silicon
Nickel Carbide
Niobium-Iron Diagram
Non-destructive Thickness Measurements
Radiomicrography
Sintering of Hard-metal Alloys, W. D. Jones

DECEMBER ISSUE (30.12.38).

Ageing, Part II, M. L. V. Gayler
Dusseldorf Rail Congress, Hugh O'Neill
Fissures in Railroad Rails
Iron-Titanium-Carbon Alloys
Niobium-Iron and Niobium-Iron-Carbon Alloys
Supersonic Waves, Applications of
Tin-plate Manufacture in Germany

PRINTED IN GREAT BRITAIN FOR THE PROPRIETORS BY GEORGE REVEIRS, LIMITED, AT 10 AND 12, ROSEBERY AVENUE, LONDON, E.C.1, AND PUBLISHED BY ARTHUR RONALD VAUGHAN AT THE ENGINEER OFFICE, 28, ESSEX STREET, STRAND, IN THE PARISH OF ST. CLEMENT DANES, IN THE COUNTY OF MIDDLESEX.—FRIDAY, JANUARY 20, 1939